

War and Pestilence: Conflict, Refugees, and the Human Immunodeficiency Virus in Sub-Saharan Africa

by

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Dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in the Department of Political Science
in the Graduate School of Duke University
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ABSTRACT

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Abstract

Leaders of international institutions and African states, as well as observers of international politics, have argued that conflict and HIV/AIDS are intertwined. In order to better understand this relationship, I test whether the HIV epidemic has contributed to war and violence in sub-Saharan Africa, as well as the conditions under which conflict contributes to HIV/AIDS prevalence. I test the relationship between violence and HIV using a cross-national time-series of African states and two case studies. I find little evidence to substantiate the claim that HIV/AIDS poses a risk of sparking civil war. While HIV may be associated with lower levels of violence, domestic political institutions have been remarkably resilient in coping with the epidemic. In assessing the circumstances under which conflicts contribute to the proliferation of HIV, I propose that the ethnicity of refugees will determine the extent to which war-induced migrant populations are able to mix with host populations. To test this hypothesis, I assemble original data on the ethnicity of refugee flows. I also propose that the cessation of conflict will foster the spread of HIV/AIDS due to increased population movements. I test both of these hypotheses using a time-series cross-national statistical analysis, as well as several case studies. I find that the ethnicity of refugees and conflict cessation are integral to understanding the impact of war on HIV/AIDS.

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1. Introduction

Throughout history, more soldiers have lost their lives to infectious disease than in armed conflict (Foege, 1997). Most of the combatant deaths during the Napoleonic Wars were from typhus, while in the Crimean War the Russians killed only a tenth as many British troops as dysentery. The outcome of the Franco-Prussian War was arguably determined by disease as much as by innovations in tactics or technology (Singer, 2002). The casualties of military combat almost never approach the annual toll from infectious agents, even with the tools available today to combat the diseases they cause. Infectious disease remains one of the greatest threats to human security in the post-Cold War world. Even today, hundreds of millions of people are infected (Pirages, 1995). Of the diseases that have received the most international attention, the most prominent is Acquired Immune Deficiency Syndrome (AIDS), caused by the Human Immunodeficiency Virus (HIV).

The scale and scope of the HIV/AIDS pandemic has only three analogs in recorded human history: the 1918 flu pandemic, the introduction of smallpox into the Western Hemisphere, and the Black Death in the fourteenth century. The flu pandemic of 1918-19 was responsible for an estimated twenty-five million deaths worldwide and easily outstripped the number of battlefield deaths in World War I (Pirages, 1995). During the fourteenth century, the Black Death resulted in the elimination of more than

a third of the European population in roughly eighteen months, with calamitous results for society. (Garrett, 2005).

In this work, I analyze the link between HIV/AIDS, violence, and war. I find some evidence to substantiate claims that link the HIV/AIDS epidemic to an increased risk of some forms of civil violence but not war. I also contribute to the literature on the social determinants of HIV/AIDS by elucidating some of the conditions under which conflict exacerbates the spread of HIV/AIDS.

Why focus on HIV/AIDS? The transmission of HIV is a social phenomenon as well as a biological one. The study of HIV/AIDS fits within the changing view of security, which increasingly incorporates elements of human security, rather than merely state territorial integrity. The early HIV/AIDS epidemic was arguably driven by sweeping social changes and political events including African urbanization, the Uganda-Tanzania war of 1978-79, widespread poverty, and weak state institutions (Garrett, 1996). The human toll is immense. Since the inception of the pandemic, over thirty-six million people have died from HIV/AIDS. Over thirty-five million people currently live with the disease, and there were 2.3 million new infections in 2012. Globally, AIDS is the leading infectious killer (UNAIDS, 2013). By 2002, AIDS had become the primary cause of death in sub-Saharan Africa (Elbe, 2002), and it is responsible for killing more than ten times as many people in Africa as conflicts (Thurman, 2001). Life expectancy in affected countries has plummeted. For example, life

expectancy in Malawi has fallen to the country's 1969 level, reversing thirty years of development investment. Botswana lost sixteen years, Lesotho lost 14.4. Such declines, in the absence of war, are unprecedented in human history (Garrett, 2005).

AIDS presents with features that have social and political ramifications. By disproportionately affecting working age people, the disease reduces productivity, reduces the accumulation of intergenerational capital, and depletes the human capital necessary to sustain socioeconomic development and political governance (Poku, 2005). Because HIV is a sexually transmitted disease, it is taking the greatest tolls among men and women aged twenty to fifty years, reducing or ending prematurely the lives of many nations' productive labor forces, parents, leaders, and trained professionals (Garrett, 2005).

Africa today resembles Europe prior to the Black Death, with an abundant supply of unskilled labor, lack of clear property rights for the majority of people, domination by a small segment of elites, widespread conflict, and an ongoing transition from agrarian to urbanized societies. These same factors contributed to the radical impact of the Black Death (Garrett, 2005). Like the Black Death, AIDS has reshaped the demographic distribution of society in Africa, depleting productive-age adults between fourteen and sixty years of age, generating massive numbers of orphans, and producing labor shortages in agriculture and other key sectors. In the case of the Black Death, these changes wrought a significant and fundamental economic transformation, drove up the

value of labor and eroded feudal control, and created challenges to military forces.

Overall, the disease changed the concepts of civil society and the legitimacy and role of the state, and created tension between the rich and poor in Europe that established the foundation for profound political change (Herlihy, 1997). Arguably, these features bear a strong resemblance to the HIV/AIDS epidemic in the most severely affected countries.

AIDS is thus much more than a public health crisis. It is a human, development, and possibly security crisis of historic proportions. Even in countries with a moderate prevalence rate of around five percent, below the average for sub-Saharan Africa, the epidemic has reduced life expectancy and reversed health improvements achieved over the last few decades (Lule & Haacker, 2011). Early prognostications by U.S. intelligence and security agencies predicted that the epidemic would, in the most extreme cases, result in civil war and failed states. Subsequent calls by advocates and African politicians have reinforced the sense that HIV/AIDS pandemic might spell impending doom for African regimes. However, definitive examples are lacking.

1.1 Focus

The first definitive cases of AIDS appeared in Uganda and Tanzania shortly after the war in Uganda in 1978-79 (Hooper, 2000). The AIDS epidemic began in earnest in the Democratic Republic of the Congo (DRC) - a state long beset by violence and state fragility - around the same time, though HIV infection was present in the DRC before then. Mainstream biomedical and social science literature has increasingly documented

the role that war, poverty, lack of social constraints, and forced prostitution play in undermining the immune system and how these factors increase the likelihood of contracting HIV (Farmer, Connors, & Simmons, 1996; Jakab, 2000; McNeill, 2010).

However, it has been suggested that the causal relationship between HIV/AIDS and conflict runs in both directions. UN Resolution 1308 states that the HIV/AIDS pandemic is "...exacerbated by conditions of violence and instability...and that the HIV/AIDS pandemic, if unchecked, may pose a risk to stability and security." Thus, just as conflict and state fragility may be driving the spread of the disease, AIDS may be undermining state capacity and leading to violence and conflict. Both directions of the relationship are examined in this work.

In the early 2000s, the International Crisis Group predicted that HIV would reduce access to key resources in Africa, including petroleum, gold, diamonds, uranium, platinum, cobalt, and copper (International Crisis Group, 2001). In addition, the price of most of Africa's raw material exports has declined in relation to important finished goods. For many African states that relied on oil exports, reductions in oil prices in the 1980s resulted in losses equivalent to six per cent of GDP during this period (Poku, 2005). It is widely acknowledged that poverty, marginalization, and widespread alienation are core problems facing African countries that also contribute to the HIV epidemic (Poku, 2005). Across the African continent, HIV/AIDS has reduced life

expectancy, often on the order of decades, erasing decades of growth and development contributions (Poku, 2005).

The weakening of states' institutions has long served as a spark for coups, revolts, and other political and ethnic struggles to secure control over resources (Singer, 2002). International terrorist organizations continue to use Africa as a safe haven, staging area, and transit point to target U.S. interests (Garrett, 2005; Miko, 2005). To the extent that HIV contributes to the decreased ability of states to police their own territory, the disease could represent a very real threat to American security interests.

Humanity is on the move around the world, whether due to religious and ethnic intolerance, warfare, or rural to urban migration. However, human mobility increases the chance for microbes to move as well. Increased population expansion also raises the probability that pathogens will be transmitted, particularly in developing world megacities that lack the requisite sewage and water systems, housing, and public health infrastructure to provide a counter to infectious disease. The pneumonic plague outbreak in Surat and the 1995 Ebola outbreak in Kikwit illustrate this all too well (Garrett, 1996). The damage is not necessarily due exclusively to lives lost; the Indian economy is estimated to have lost over \$2 billion in sales and losses on the Bombay stock market due to the plague outbreak in Surat (Garrett, 1996).

Increasing prevalence is not unique to new microbes; many traditional diseases seem to be resurgent. TB, nearly eliminated in parts of Africa, is again rampant in

southern and central Africa, largely due to its nature as an opportunistic infection associated with AIDS (Prins, 2004). The recent recurrence of polio in war-ravaged Syria and subsequently Iraq illustrate all too well how conflict can contribute to the propagation of infectious diseases.

1.2 Argument and Findings

In this work, I seek to answer two questions regarding the reciprocal relationship between conflict and HIV/AIDS. First, is there a link between HIV/AIDS and the risk of civil violence or war? Second, under what conditions does conflict exacerbate the spread of HIV/AIDS?

In this work, I test two primary hypotheses. The first is that higher prevalence of HIV/AIDS is associated with an increased risk of civil war or violence. A number of potential mechanisms have been identified in anecdotal reports and qualitative studies. Particularly in Africa, increased morbidity and mortality among the military, police, and civil servants in key bureaucracies weaken the ability of the state to govern, repress dissent, and repel foreign forces. The disease affects people in their prime working years, reducing productivity, human capital, and saddling families with medical and funeral costs they are unable to afford. The disease thus undermines development. It may also create social conditions, such as vast numbers of orphans, who are prone to crime and recruitment by paramilitary organizations. HIV/AIDS interacts with population pressures, such as migration and urbanization, to create a more volatile

social and political environment. Governments viewed as incapable of addressing the problems caused by HIV/AIDS may lose legitimacy and foster a heightened sense of marginalization amongst affected populations, driving a stronger sense of deprivation and resentment. The sum total of these pressures will be to weaken state capacity, leading to violence and in extreme cases, civil war. However, the quantitative analysis presented in this work does not attempt to elucidate the particular mechanisms responsible for this relationship and in fact calls into question the link between civil war and HIV/AIDS.

The findings of my analysis suggest there is evidence that the epidemic is associated with political violence in sub-Saharan Africa. In this analysis, I find an association between higher HIV prevalence and riots, strikes, and demonstrations. However, HIV appears to be associated with a lower number of revolutions and instances of guerilla warfare. I do not find any evidence that civil war is associated with HIV prevalence, once confounding factors are taken into account. In this regard, the direst predictions of state failure and anarchy have not been borne out. However, there is evidence that the epidemic has been mitigated by responses inspired by the calls to treat HIV/AIDS as a fundamental threat to state security. In other words, such predictions may have been a victim of their own success in calling for the disease to be addressed aggressively with substantial resources. The cases in Chapter 5 illustrate how the epidemic initially undermined legitimacy, but subsequently political institutions

have allowed governments to weather the epidemic through either heavy-handed policies or democratic inclusiveness.

With regards to the second question, under what conditions do conflicts exacerbate HIV/AIDS, I focus on the intervening variables between conflict and HIV. Scholars and policy practitioners have long argued that HIV/AIDS prevalence is driven, in part, by violent conflict and the movement of refugees. Conflict, it has been argued, contributes to the spread of the AIDS epidemic due to the conditions associated with, and consequences of, violent conflicts. Refugees provide a vehicle for infectious disease to travel to new areas, and the conditions to which refugee and internally displaced populations are exposed provide perfect conditions for the spread of the virus. However, recent analyses have found contradictory results when examining the link between conflict, refugees, and HIV prevalence.

In this work, I argue that understanding the impact of conflict requires a more nuanced understanding of conflict processes. In particular, without examining the important intervening variables that actually give rise to the impact of conflict on HIV/AIDS, we are unlikely to understand the relationship between conflict and HIV. Using an original dataset on the ethnicity of refugee flows in sub-Saharan Africa, I test how the ethnic composition of refugees impacts post-conflict HIV/AIDS prevalence.

Shared ethnicity between refugee and host populations increases the integration of the refugees into the host society, resulting in a higher number of interactions

between high and low-risk individuals. Perversely, access to health care, employment, and social welfare programs is often worse compared to refugee camps, which are serviced by international non-governmental organizations (INGOs). This leads to an increase in the post-conflict HIV/AIDS prevalence rate in those instances in which the refugees are able to integrate into the host society, due to the intermixing of populations – which has been shown to drive spread of the disease – and poor health and socioeconomic conditions, which contribute to fewer prevention and treatment resources, as well as creating greater vulnerability to the disease.

Several important findings emerge from this analysis. The first is that the presence of conflict alone does not herald an increase in HIV prevalence. Second, the ethnicity of refugees matters; by knowing whether the refugees share ethnic ties with populations in the host state, we can predict whether the HIV prevalence will increase. Finally, it is the end of conflicts that pose the greatest danger for the spread of HIV. This is likely due to the lifting of restrictions on mobility of individuals and the resumption of normal activities. Future research should expound upon the relationship between intervening variables that link conflict and HIV to understand the circumstances under which the epidemic will be exacerbated. Future research should also devote attention to delineating the mechanisms by which conflict cessation drives the epidemic.

1.3 Plan for the Dissertation

Before proceeding to the analyses, it is necessary to establish the appropriate framework for studying HIV/AIDS and conflict. In Chapter 2, I discuss the rise of human security, which provides the best framework for examining HIV/AIDS as an issue within the field of security, peace, and conflict studies. I then examine the securitization of HIV/AIDS. In Chapter 3, I introduce why we have reason to believe that HIV/AIDS may lead to civil violence and conflict. In Chapter 4, I examine this hypothesis quantitatively. In Chapter 5, I examine the cases of Uganda and South Africa.

In Chapter 6, I examine the other side of the relationship: how conflict may drive the AIDS epidemic. I review the literature and introduce a theory to explain why disaggregating conflict, particularly refugee flows, is necessary to explain the impact of conflict on HIV. I examine the validity of this quantitative test in Chapter 7, followed by an examination of the cases of Guinea, the DRC, Angola, and Mozambique in Chapter 8.

In Chapter 9, I conclude with the implications of this work for policy, in terms of both health and security, and provide directions for future research.

2. The Securitization of Health and HIV/AIDS

“At the dawn of the twenty-first century, a new understanding of security is emerging....Human security, in its broadest sense, embraces far more than the absence of violent conflict. It encompasses human rights, good governance, access to education and health care and ensuring that each individual has opportunities and choices to fulfill his or her potential. Every step in this direction is also a step towards reducing poverty, achieving economic growth, and preventing conflict. Freedom from want, freedom from fear, and the freedom of future generations to inherit a healthy natural environment – these are the interrelated building blocks of human – and therefore national – security” (Annan, 2000).

Traditional conceptions of security are focused almost exclusively on the security of states, particularly maintaining territorial integrity. International Relations theory has traditionally focused on the mechanisms to avoid, prevent, and win interstate military disputes (King & Murray, 2002). Traditional threats to a state are other states; after all, these are the most important actors in world politics, according to most traditional theories of international relations. However, other threats to states are increasingly recognized that do not fit into this framework. Terrorism by non-state actors is an obvious example; however, less traditional threats include climate change, water security, and infectious disease outbreaks such as the HIV/AIDS pandemic. Many of these new global challenges spill beyond national frontiers and can affect people

everywhere. Famines, ethnic conflict, terrorism, pollution, and drug trafficking cannot be confined within national borders (United Nations Development Programme, 1994a). These new threats do not respond to defensive forces or deterrence. Yet many have argued that these new threats have the potential to fundamentally undermine state security, even for states that view themselves as secure from conventional threats.

By the turn of the twenty-first century, there arose an increasing recognition that security as concerned solely with territorial integrity, without regard to the security of individuals that comprise a state, was insufficient. State survival may be important for its own sake, but it is most important because state security ensures the survival and protection of its citizens. However, a focus on countering conventional or even new security threats such as terrorist networks does not ensure that individuals will possess personal security. This focus on the security of the individual has come to be known as *human security*. The first section of this chapter will deal with the new paradigm of human security. In the second section, human security is defined. Subsequent sections will explain how health and HIV/AIDS came to be securitized.

2.1 The Rise of Human Security

The general idea of human security is not new. In fact, the U.S. Secretary of State, when reporting on the results of the San Francisco Conference responsible for the founding of the United Nations said: “The battle of peace has to be fought on two fronts. The first is the security front where victory spells freedom from fear. The second is the

economic and social front where victory means freedom from want. Only victory on both fronts can assure the world of an enduring peace...No provisions that can be written into the Charter will enable the Security Council to make the world secure from war if men and women have no security in their homes or jobs" (United Nations Development Programme, 1994b). Going back even further, concerns about the security of individuals have been central to the work of the Red Cross since the nineteenth century and informed the Geneva Conventions. Concerns about security at the individual level also provided the impetus for many international human rights instruments (McRae, 2001).

Beginning in the 1990s, the paradigm of human security began to gain greater traction. Much like changing paradigms in development, the increased prominence of human security reflected events in international politics, such as the end of the Cold War, and changes in the nature of issues confronting states. The launch of the *Human Development Report* in 1990 ushered in a focus on the general well-being of people and a focus on the security of individuals rather than the sanctity of national boundaries (King & Murray, 2002). This focus gave rise to measures such as the Human Development Index, which is used to measure the circumstances of populations in a more inclusive manner than merely focusing on per capita income. The signing of the Millennium Development Goals by world leaders in 2000 arguably demonstrates that, in the twenty-

first century, most governments and international organizations regard human security - including health security - as an essential element of state security (Barrett, 2010).

The United Nations Development Programme, in the 1994 Human Development Report, called for a transition from nuclear security to human security. One of the most significant developments in international politics that contributed to the rise of human security was the end of the Cold War. The reduced threat of great-power conflict prompted a debate about whether to broaden the concept of security (King & Murray, 2002). It also highlighted that traditional conceptions were focused almost exclusively on the security, deterrence, and bipolar relationship between the United States and the Soviet Union. While important, the focus of such paradigms of security may be of little relevance to those in the developing world whose primary threats to their health and well-being coming from poverty, infectious disease, and famine (Ostergard, 2002).

With the end of the Cold War, the touchstone for U.S. foreign policy in particular - the containment of Soviet military power and ideology - became less helpful as new threats rose to prominence (Sorensen, 1990). For example, by the beginning of the 1990s, environmental issues, and to a certain extent global climate change, had already emerged to threaten the security of states. Illicit drugs, migrants, unregulated pollution producing acid rain, and electronically transmitted financial instruments indicated a decline in the strength of national sovereignty (Abshire, 1996; Dalby, 1995; Sorensen, 1990). Developments in the areas of natural resources, demography, and environmental

problems can have a profound impact on national security. However, traditional conceptions of sovereignty and state borders fail to adequately address such issues. These issues, such as environmental decline, often affect security through their negative impact on economic growth, and subsequently, political stability. They cross international borders but cannot necessarily be linked directly to the foreign policies or behavior of individual states. As will be discussed below, economic decline may lead to frustration, resentment, domestic unrest or even civil war. Human suffering and turmoil make countries ripe for authoritarian government (Shambaugh & Matthew, 1998; Tuchman Mathews, 1989).

Relatedly, the campaign to ban landmines ignited interest in international efforts to enhance human security by focusing on reducing the human toll of war (King & Murray, 2002). In fact, many attribute the success of the Ottawa Convention to the success of superimposing the human security framework onto what had traditionally been an arms control or disarmament issue (Gwozdecky & Sinclair, 2001).

Other changing issues in international politics, such as the increase in intrastate conflicts, have also challenged traditional conceptions of security by revealing the limitations of using states as the principal agents of humanitarian protection under international instruments such as the Geneva Conventions. Of twenty-seven armed conflicts taking place in 1999, twenty-five were internal and involved one or more non-state actors. States themselves are often the perpetrators of human rights violations, non-

state actors are often outside the control of the state, and many conventions do not adequately address the specific needs of many vulnerable groups. Thus, a new conception of security is necessary to complement traditional national security (Bruderlein, 2001). While wars may kill, increase poverty and crime, slow down the economy, and have other deleterious effects, the deprivation associated with deficits in human security can undermine state security and lead to violence and conflict (Commission on Human Security, 2003). Furthermore, in 2003, when the Commission on Human Security published its report, more than 800,000 people a year lost their lives to violence and about 2.8 billion suffered from poverty, ill health, illiteracy, and other maladies (Commission on Human Security, 2003). These deaths and human suffering were inadequately accounted for by traditional conceptions of security.

The Responsibility to Protect doctrine has also played a role in re-conceptualizing important aspects of international relations such as sovereignty and security. Even if the Responsibility to Protect has yet to become codified international law, and has been applied inconsistently, it has begun shifting some of the focus of state security from purely external threats to the safety and well-being of citizens. To the extent that authorities lapse in their duty to provide safety for their citizens, the international community has a responsibility to intervene (Evans & Sahnoun, 2002). This logic is similar to the logic with regards to health as critical to security. To the extent a

government fails to alleviate gross health burdens, this may generate discontent and desire for political change (Chow, 1996).

In short, by the turn of the century, there was a strong recognition that new threats to nation-states and individuals required a new perspective on security. Rather than thermonuclear war, many issues threatening individuals and states alike were not amenable to solutions involving large standing militaries, nor are they even solvable for a single state acting alone. In response, the foreign policies of many states have changed to explicitly incorporate human security, including Canada, Norway, and Japan (King & Murray, 2002; Paris, 2001).

2.2 Defining Human Security

“In the final analysis, human security is a child who did not die, a disease that did not spread, a job that was not cut, an ethnic tension that did not explode in violence, a dissident who was not silenced. Human security is not a concern with weapons – it is a concern with human life and dignity” (United Nations Development Programme, 1994a).

Human security, as fostered by the United Nations Development Program, is broadly used to mean freedom from fear and want (King & Murray, 2002). By one definition, human security entails: “The security of the individual in his or her personal surroundings, community, and environment. This includes personal security for the

individual from violence or harm; access to the basic essentials of life; protection from crime and terrorism, pandemic diseases, political corruption, forced migration, and absence of human rights; freedom from violations based on gender; rights of political and cultural communities; political, economic, and democratic development; preventing the misuse and overuse of natural resources; environmental sustainability; and efforts to curtail pollution” (King & Murray, 2002).

Human security as described above has seven components: economic security, or the right to a basic income; food security, which entails physical and economic access to food; health security, which may range from infectious disease to chronic illness; environmental security, including global climate change as well as water scarcity, deforestation, and pollution; personal security, or the freedom from physical violence; community security; and political security, or the protection of basic human rights. Human security is also said to be universal, its constituent parts interdependent, easier to achieve through prevention than intervention, and people-centered (United Nations Development Programme, 1994a).

Human security was conceived as a response to traditional conceptions of security. The 1994 Human Development Report also states: “The concept of security has for too long been interpreted narrowly: as security of territory from external aggression, or as protection of national interests in foreign policy or as global security from the threat of nuclear holocaust...” (p. 22-23).

However, there is no widely accepted single definition of human security.

Though the UNDP's 1994 definition is the most widely cited and perhaps authoritative, different elements of the human security community have presented amended versions, often to suit their interests (Paris, 2001). King and Murray (2002) identify five key indicators of well-being – poverty, health, education, political freedom, and democracy – but leave out physical security. Other definitions include virtually all-aspects of human comfort and well-being. Both negative (freedom from) and positive (freedom to) aspects are integral to human security (Thakur, 1997).

The key idea behind human security is the focus on the individual as the primary object of security. The principal goal, as it informs foreign policy, is to ensure societal or communitarian stability as opposed to safeguarding territorial sovereignty. Traditional security emphasizes structured, militarized interstate violence with the main threat to security stemming from the consequences of an anarchic international system. Human security approaches generally view the primary threats to global security emerging from unstructured turmoil, as a result of socioeconomic, political, and even environmental factors (Brower & Chalk, 2003). Traditional security emphasizes competition and relative gains, whereas human security stresses the potential for cooperation and absolute gains.

2.3 The Securitization of HIV/AIDS

In January 2000, the Security Council met in an open debate on the impact of AIDS on peace and security in Africa. This marked the first time that the Council had

ever discussed a health issue as a threat to peace and security. How are we to understand this?

There are several reasons for the current prominence of global health issues. There is a widening recognition that some major risks to health are global, in that they may impact health worldwide, are rooted in transnational dependencies associated with globalization, and require a global response to address effectively. Similar issues include pollution of the oceans, depletion of the ozone layer, nuclear terrorism, and bioterrorism (Buchanan & Decamp, 2006).

For nearly two decades after the discovery of HIV/AIDS in the mid-1980s, the disease was thought of primarily as a public health and development issue (Elbe, 2006). This began to change in the mid and late 1990s. By 1996, a Presidential Decision Directive described HIV/AIDS, together with other infectious diseases such as Ebola and drug-resistant tuberculosis, as one of the most significant security and health challenges facing the international community. This was based on the idea that in the post-Cold War world, increasing global interconnectivity would shape security concerns. In 1999, the Clinton Administration characterized HIV/AIDS as one of a range of transnational security threats emanating from Africa (Flint, 2011).

In July 2000, the UN Security Council passed resolution 1308, concerning the impact of AIDS on peace and security (United Nations Security Council, 2000). This was in large part due to the efforts of Richard Holbrooke, the Clinton administration's

ambassador to the UN. Holbrooke, after viewing hundreds of AIDS orphans turned out in the streets at night in Lusaka, Zambia, immediately began advocating for treating HIV/AIDS as a security issue. He literally picked up the phone on the flight returning to the United States to begin advocating for the view that the AIDS epidemic posed a threat to international stability and security (Prins, 2004).

UNSC Resolution 1308 focused on four claims: that HIV/AIDS poses a risk to stability; a risk to national security; a risk to peacekeepers; and that the spread of HIV/AIDS is exacerbated by conditions of conflict and violence (McInnes, 2006). Vice President Gore argued that the goal of the security agenda is to protect lives, and AIDS represents a security crisis because it threatens to undermine the very institutions that govern and defend functioning societies (Prins, 2004). AIDS was also purported to undermine the international capacity to resolve conflicts in Africa, due to the increasing tendency to rely on African forces to intervene in African civil and ethnic conflicts (International Crisis Group, 2001).

The securitization of HIV/AIDS is important because it defines how states respond to the epidemic, how much is allocated to combating it, and what sectors of government are involved in the response (Elbe, 2006). The first two waves of the disease, infection and increasing morbidity and mortality, are in some ways irreversible. However, the third wave of economic, social, and political impacts is not necessarily inevitable (De Waal, 2003). The securitization of HIV/AIDS by the UN in 2000 assigned

an urgency and importance to the AIDS epidemic traditionally only afforded to wars between states (Barrett, 2010).

The logic that holds HIV/AIDS represents a threat to international security underlies the response of many Western states to the epidemic. For example, George W. Bush's President's Emergency Plan for AIDS Relief (PEPFAR) - which represents the largest commitment ever by any nation for an international health initiative dedicated to a single disease – was justified in part by concerns about threats of the disease to security (Barrett, 2010). The legislation authorizing PEPFAR states that HIV/AIDS has the potential to destabilize communities and weaken the defenses of countries severely afflicted by the disease (Selgelid & Enemark, 2008). The United States Central Intelligence Agency has been tracking the disease's impact on the human security of sub-Saharan Africa since 1990, when it instructed analysts to add the effects of HIV/AIDS as a variable to the models that are used to predict which countries are at risk for state-failure (Fourie & Schönteich, 2001).

The U.S. Department of Defense implements its assigned PEPFAR programs by “supporting HIV/AIDS prevention, treatment and care, strategic information, human capacity development, and program and policy development in host militaries and civilian communities of 73 countries around the world.” Defense forces in 13 PEPFAR countries have received Defense Department military-specific HIV/AIDS prevention programs designed to address risk factors specific to the military, in addition to

treatment and care programs. Regional commands incorporate HIV/AIDS into their strategic missions. For example, the U.S. Africa Command “recognizes HIV/AIDS has an enormous impact on economic and political stability across the continent, and by degrading military medical readiness, weakens the national security of the individual countries. HIV/AIDS programming will be a key component of AFRICOM’s security cooperation...” The U.S. Pacific Command works to prevent the spread of HIV among military personnel in several Asian countries. The Defense Department also has the U.S. Military HIV Research Program (MHRP), which is dedicated to HIV vaccine development, prevention, disease surveillance, as well as care and treatment for HIV. MHRP has development programs for Kenya, Nigeria, Tanzania, and Uganda (PEPFAR,). The U.S. Department of Defense has provided expertise to the Angolan armed forces in condom distribution and AIDS education of their personnel and has provided the South Africa Defense Forces with antiretroviral drugs to maintain combat readiness. This is due in part to the recognition that the SANDF plays a key role in peacekeeping in Africa. The SANDF remains the best equipped and trained military in sub-Saharan Africa, and its potential absence from – or even decreased contribution to – peacekeeping missions will significantly detract from the effectiveness of any future deployments (Brower & Chalk, 2003; Garrett, 2005).

While the ability of HIV/AIDS to compromise the health and security of an individual is clear, it is less obvious how HIV/AIDS might pose a threat to state security.

HIV/AIDS does not in itself pose a security problem. Rather, the collective impact of the disease on the structure of society and state capacity together undermines state security (McInnes, 2006). For instance, a decline in population health will generate significant declines in state capacity in the long term (Price-Smith & Daly, 2009). This issue will be covered in greater depth in the next chapter.

Why did it take nearly two decades from its discovery as a new disease for the international community to characterize HIV/AIDS as a security threat? This is likely because HIV/AIDS is a long-wave event, with a significant period from initial infection to acute illness and death (Merson, O'Malley, Serwadda, & Apisuk, 2008). HIV/AIDS can be considered a disease of attrition; the damage to individuals and society from the disease occurs over the long term and affects all aspects of society, including the functioning of traditional state-led human security mechanisms, such as the operation of government, the military, police, and legal system. It also decimates the ranks of health workers and teachers (Barrett, 2010). Despite the destructive potential of this disease and its potential to threaten individual and state security, this process takes place over many years.

Disease is also outside traditional conceptions of security. Policy makers and academics alike have long been steeped in academic theories that were primarily concerned with balances of forces and economic might. These have long been viewed – perhaps rightly so – as the most important factors determining the security of nation-

states. This has not necessarily changed, however complex threats that come not from nation-states but from forces beyond the control of individual countries have risen in prominence, and while recognition has been gradual, these issues are increasingly viewed as threats to security in the twenty-first century.

Some also opposed securitization of the disease because they feared blowing the issue out of proportion, as with the predicted 'water wars' of the 1990s that failed to occur (Homer-Dixon, 1994). Those in the hard security community opposed diluting the definition of security, while AIDS activists feared the consequences of militarizing the disease (Prins, 2004).

2.4 Criticisms of Human Security

Many have argued that human security, as formulated by the UNDP, is too broad to serve as a useful guide to states when setting security goals or foreign policy (King & Murray, 2002). In addition, as with any phenomenon, if the definition is so inclusive as to include all aspects of human well-being, it ceases to be useful as a construct for understanding social or political phenomenon. Those who have advocated for human security have provided little guidance in the prioritization of competing policy goals, or even given academics a clear sense of what exactly they are supposed to even study (Paris, 2001).

A second potential problem with the analytical lens of human security is related to its lack of precision. Human security represents a common, if vague, orientation that binds a large coalition of states, NGOs, and development agencies, all of which seek to shift attention and resources away from conventional security issues and towards goals that have traditionally fallen under the heading of international development. This potentially permits the capture of greater attention, a sense of urgency, and the superior financial resources associated with issues related to traditional conceptions of security (Paris, 2001).

There may also be danger in securitizing AIDS specifically. The securitization of HIV/AIDS could push national and international responses to the disease away from civil society toward state institutions, such as the military and the intelligence community. Many of these institutions, particularly in developing countries, have the power to override human rights and civil liberties. The effects on those suffering from the disease could be significant, given the oppressive role many security institutions play in developing states (Buzan, Waever, & Wilde, 1998). In addition, the very language of security creates threats that must be defended against. This may have a number of follow-on consequences, including the prioritization of resources for armed forces and elites who are viewed as critical to maintaining state security (or who may simply have the power to sequester resources for themselves). It may also undermine the efforts of grassroots organizations to normalize social perceptions about individuals living with

HIV/AIDS (Elbe, 2006). Many governments have in fact come to view HIV advocates as a threat to the state, due to the prevailing view that domestic instability is the primary threat to national security (Garrett, 2005). Thus, the process of securitizing HIV/AIDS may have a number of deleterious, unintended consequences that in many ways negate the efforts of those who have pushed for the securitization of the disease in order to improve human security.

However, the process of securitizing HIV/AIDS has undoubtedly had significant benefits. For example, the securitization of the disease has allowed the burden of combating the epidemic to shift away from ministries with little clout to address such matters, including scant financial assets (Altman, 2000). By securitizing the disease, ministries such as defense, with greater political clout and resources, have often taken on some of the burden of combating the epidemic. While there are dangers associated with this shift in responsibility, governments have thus far failed to act on the HIV/AIDS epidemic until they perceived real threats to their power (de Waal, 2003). Militaries have proven relatively adept at addressing HIV/AIDS. The structured, highly disciplined nature of militaries has helped them respond with often rigorous AIDS awareness programs. Recruits have also been screened to prevent HIV-positive individuals from joining the ranks.

Those who promote the framework of human security can also point to some important successes, even absent a clear and precise definition of what human security

is. Arguably, the signing of the anti-personnel land mine convention as well as the creation of the International Criminal Court were both driven in large part by those who see human security as an integral element to international security.

2.5 Conclusion

Ultimately, human security and traditional state security are not necessarily alternatives but represent a continuum of security. Even before the Cold War ended, security studies experienced a broadening in scope, to encompass nonmilitary threats such as the spread of disease, terrorism, and environmental degradation, as well as a deepening, which including the security of individual and groups rather than merely states (Horowitz, 1985; Rothstein, 1999; Tuchman Mathews, 1989; Ullmann, 1983). Many tools overlap, including the use of military force to conduct humanitarian interventions during famines and civil conflicts (McRae, 2001). State-centric paradigms have failed to adequately deal with emerging issues that originate within national borders but whose effects transcend international boundaries and affect the security of people worldwide (Brower & Chalk, 2003). Human security may serve as a useful label for a broad category of research in the field of security studies that is primarily concerned with nonmilitary threats to individuals, groups, and societies (Paris, 2001), even given the aforementioned criticisms.

This chapter situates the study of HIV/AIDS in the shifting paradigms of security, peace, and conflict. The field increasingly acknowledges the costs of conflict, as

well as the impact of non-state threats to international peace and stability. Political scientists can do much to contribute to understanding the multifarious impacts of the HIV/AIDS epidemic, as well as the consequences of war on public health.

3. HIV/AIDS and Civil Conflict

“The HIV virus, like terrorism, kills indiscriminately and without mercy... As cruel as any tyrant, the virus will crush the human spirit. It is an insidious and relentless foe, more destructive than any army, any conflict, and any weapon of mass destruction. It shatters families, tears the fabric of societies, and undermines government, undermines the very basis of democracy. It can destroy countries and, as we have seen, it can destabilize entire regions” (Powell 2003).

The direst prognosticators, particularly in the late 1990s and early 2000s, predicted that the AIDS epidemic would lead to state failure and collapse. This would be preceded or followed by civil wars and violent social conflict as states fell victim to the epidemic. With the depletion of the military, police, judiciary, civil servant corps, industrial and agricultural workers, as well as economic stagnation or even a decline in GDP, states would implode. Only slightly less pessimistically, it was predicted that the epidemic would increase the likelihood of civil war. Countries like Nigeria and Ethiopia, both integral to regional security, were predicted to be hard-hit, with AIDS decimating key government and business elites, undermining growth, and discouraging foreign investment (Prins, 2004). The remarkable reduction in life expectancy and increase in child mortality - both commonly viewed as indicators of the strength of state institutions - in the hardest-hit countries presents a stark indication of weakening in states' capacity (Garrett, 2005).

In addition to the above, additional mechanisms for the potential impact of the HIV epidemic on governance and violence abound. The epidemic might damage the prospects for the transition to democratic rule by hampering the evolution of sound political and economic institutions and intensify the struggle for power and resources (National Intelligence Council (US), 2000), fostering increased competition between elites, classes, and ethnic groups. AIDS-induced mortality erodes the base of human capital, which is crucial to long-run growth, constraining future economic productivity and generating institutional fragility (Bell, Devarajan, & Gersbach, 2006). The burden of the disease falls disproportionately on the poor, exacerbating income and social inequalities between classes. Disease, and the conditions generated by it, will likely foment the scapegoating and persecution of ethnic minorities. The proliferation of HIV/AIDS threatens the legitimacy of the ruling regime, increasing the likelihood of conflict between the state and society. Demographic collapse may also generate vast cohorts of orphans, who are more amenable to criminal activity and radicalization. Finally, the risk of international conflict may even be present, as contagion withers state capacity and the economy, resulting in a loss of power relative to neighboring states (Price-Smith, 2007).

In this chapter, I examine how HIV/AIDS might undermine state capacity and contribute to the onset of civil violence, instability, and conflict. In the first section, I review the general mechanisms through which HIV/AIDS may undermine state

security. In the second section, I introduce counterarguments to the theories traditionally promulgated by AIDS advocates and in the qualitative literature.

3.1 How HIV/AIDS Leads to Conflict

The literature on civil war suggests two main causes of civil war. Those linking HIV/AIDS to violence have identified mechanisms that fall within both categories: state weakness and grievance.

3.1.1 State Weakness and HIV/AIDS

The state weakness hypothesis suggests that intra-state violence occurs when stressor variables yield opportunities and sufficient incentives for citizens to engage in violent collective action. In other words, when opportunity costs are sufficient low, joining rebellions seems an attractive option. Recent studies by political scientists and economists who study civil war have focused on the feasibility of rebellion (Collier, Hoeffler, & Rohner, 2009). For the purposes of analyzing the ability of HIV/AIDS to lead to violence, the most important aspects that influence the viability of rebellion are those that lead to an ineffective state. For example, oil and primary commodity exporters have often been found to increase the risk of experiencing civil war. One likely mechanism is that states with high oil revenues have few incentives to develop administrative competence and control throughout their territory, resulting in less administrative and bureaucratic capacity (Fearon, 2005). Other factors that reduce the ability of a state to

police or govern territory, such as mountainous terrain, have been found to predict civil wars (Fearon & Laitin, 2003).

Because AIDS-induced mortality erodes the base of human capital, constraining future economic productivity, it will generate institutional fragility through several mechanisms. Reduced economic growth undermines the financial underpinnings of the state. This reduces the ability of the state to govern and provide essential services to all citizens. In addition, the weakening of the military and police by HIV/AIDS undermines the ability of the state to police its territory and repress discontent. This may decrease the opportunity cost of taking up arms against the state, leading to civil violence and war.

HIV/AIDS impacts state capacity by undermining the military and uniformed services. Compared to the general population, it has long been accepted that African militaries suffer from rates of HIV that are significantly higher than the corresponding civilian populations. The reduction of institutional capacity of the military is particularly important for African states because in many of them, the police forces lack the enforcement capacities to deal with the nature of conflict. In many cases, states rely on the military to help provide basic security functions for the running of society, including those normally performed by civilian police forces (Brower & Chalk, 2003).

During peacetime, armed forces personnel are perhaps two to five times more likely to have HIV than their civilian counterparts (Ritzenthaler, 2005). This is due to

features particular to the military population. The majority of African militaries are 15-24 year old males, the group at highest risk of infection, due to the fact that they are the most sexually active (de Waal, 2005; McRae, 2001). They often have money to access sex workers and illicit drugs. Deployments away from home give rise to loneliness, stress, and the build-up of tensions (McInnes, 2006). Military training is designed to reduce fear, immersing recruits in a culture of invincibility, where risk-taking is encouraged and even celebrated. This creates social pressure to engage in risky behaviors, particularly casual sex (Ritzenthaler, 2005). Fatalism regarding AIDS itself may give rise to risky behavior; soldiers in the Revolutionary United Front in Sierra Leone frequently justified their violent and anti-social behavior on the grounds that they were all going to die from AIDS anyway (De Waal, 2003).

How serious can this be? Seven out of ten military deaths in South Africa in 2002 were AIDS-related. Uganda's military lost more personnel to AIDS than in two decades of fighting with the Lord's Resistance Army. Zambia has lost more military personnel to AIDS since 1983 than those who were killed in all military operations, including a relatively bloody struggle for independence (Rupiya, 2006). For countries - and militaries - with high HIV rates, the toll due to AIDS can be staggering.

Higher rates of HIV/AIDS may translate into the need for additional resources for recruitment and training, affect important staffing decisions, and may hinder the ability of soldiers to carry out their duties (Elbe, 2002). High prevalence rates thus lead

to reduced combat readiness and military performance. High rates of infection among the officer corps and NCOs deplete leadership and experience. It is not easy to replace the experience and training these individuals possessed (Ritzenthaler, 2005). Botswana, Uganda, Zimbabwe and Malawi are all facing serious gaps in their military leadership cadres. At one point, at least half of the general staff in Malawi was HIV positive (Singer, 2002). By 2004, troop strength had fallen to fifty percent of the minimum capacity thought necessary to guarantee state security.

Also in 2004, China expelled a third of the Zimbabwe National Army officers sent there for advanced training, due to their HIV status. According the Mozambican police commander, that country simply cannot recruit and train police officers fast enough to replace those dying of AIDS (Garrett, 2005). The pool of recruits may narrow as HIV-positive individuals are turned away. Even in Russia, HIV prevalence has noticeably diminished the number of potential recruits, potentially undermining security. Former Soviet states face severe weaknesses in their armed forces due to HIV and TB infections (Feshbach, 2008; Garrett, 2005).

High HIV/AIDS rates may sap morale and will impose additional costs on defense budgets. The effect of reduced military effectiveness may be to increase the risk of internal conflict (McInnes, 2006). It may also invite external conflict if adversaries perceive weakness. Around the beginning of the first Congo War, prevalence rates among troops in the DRC were estimated to be between forty and sixty percent (G. Mills

et al., 2014). This could explain the poor performance of the Congolese forces, though there were other factors at play. Nevertheless, precise figures on the infection rates among military forces in sub-Saharan Africa are sparse. Even when they are available, they are generally classified and considered to be a national security issue (G. Mills et al., 2014).

High prevalence among civil servants, teachers, police, and other skilled professionals may undermine the social and political institutions essential to the functioning of the state. For example, in 2001, more teachers died in Tanzania than graduated from that country's teaching colleges. By 1999, more than 860,000 African teachers had died of AIDS. In some countries, health care workers die as quickly as they can be trained (M. Schneider & Moodie, 2002). In many developing states, civil service employees, with higher incomes and elevated societal status, have become earlier victims of HIV than the rest of the general population. Their wealth and prestige allowed many of them to attract multiple partners, and in some cases, societal norms encourage successful males to have a large number of sexual partners. Thus cohorts of well-educated professionals, often educated in graduate programs in Europe and the United States, have experienced significant morbidity and mortality due to the epidemic. This impacts fields including medicine, health care, education, finance, civil engineering, and development planning (Price-Smith, 2007). Evidence suggests that the epidemic may also have undermined the capacities of local civil society organizations

through the loss of staff and volunteers in the most severely affected areas (Manning, 2003).

World Bank modeling suggests that when infection rates pass five percent, economic growth slows and may stop altogether when prevalence rates reach ten percent. Prevalence rates above 20 percent result in a decline in GDP (M. Schneider & Moodie, 2002). At the microeconomic level, AIDS has a dramatic and negative effect on production and earnings. Premature AIDS-induced deaths result in permanent loss of income, large funeral costs, and labor substitution as children are removed from school to generate income. AIDS-related morbidity results in reduced income and significant medical expenditures (Price-Smith, 2007). More recent studies have found that the marginal impact on income per capita of a 1% increase in HIV prevalence is -0.59%. This may initially seem minor, but even moderate HIV epidemics will quickly become significant drags on economic growth, further reducing capacity to fight the epidemic (McDonald & Roberts, 2006). This also calls into question the argument that excess labor supply in many developing countries will be sufficient to minimize the macroeconomic impacts of the HIV/AIDS epidemic, discussed below.

Development and growth are not merely predicated on life expectancy; in particular they are predicated on life expectancy upon attaining adulthood (LEA), which is being dramatically shortened in sub-Saharan Africa. Professional careers and sophisticated governing institutions that rely on educated professionals are likely to be

adversely impacted by the loss of human capital this entails. Current patterns of capital accumulation are dependent on well-established processes of lifetime saving, investment, and inheritance by the next generation. These in turn are dependent on a long LEA and will change as LEA is reduced. Complex modern institutions are framed around decades-long working lives; the running of bureaucracies such as ministries and armies are dependent on staff with professional skills, extensive networks, and years of experience. Africa has long been beset by problems of regime transition and poor levels of institutionalization; the human resource loss and strains on capacity will only exacerbate these preexisting problems (De Waal, 2003). The economic distortions due to shortened working lifespans, assuming people do not avoid professional training altogether because of the shortened period to compensate for the opportunity cost of training, along with increased dependency ratios, a decrease in savings, and lower returns to training, will also have an impact on development and growth (Cuddington, 1993).

Wealthy, educated civil servants and professionals were among the first exposed to HIV due to their wealth and social status. However, they also often have privileged access to appropriate health care, whether due to the economic means at their disposal or due to their role in societal institutions. Because of this, the burden of the disease currently falls disproportionately on the poor. Relative to their incomes, poorer populations bear an outsized share of the costs of disease (Anand & Ravallion, 1993;

Otten Jr, Teutsch, Williamson, & Marks, 1990; Sen, 1982). HIV/AIDS results in reduced income and productivity, increased medical, funeral, and care costs, and often the loss of savings (Poku, 2005). Certain medications may be beyond the means of poor or even middle class families to purchase, such as unsubsidized antiretroviral therapy. Poor health and nutrition increase the risk for contracting HIV, as well as reducing the time before the disease becomes symptomatic (Price-Smith, 2007).

HIV/AIDS may also undermine security by reducing productivity, slowing economic growth, and producing political instability. The impacts of the public health response to HIV/AIDS pose significant challenges from both a macroeconomic and fiscal perspective. The costs associated with HIV/AIDS-related interventions nearly equal GDP per capita in South Africa but are more than twelve times the GDP per capita in low income countries such as Uganda (Lule & Haacker, 2011). Reduced productivity and human capital lead to decreased economic growth and thus decreased economic power. Economic power is fungible and readily translated into military power; thus, reduced economic power is reduced military power. In sub-Saharan Africa, military might is not only used in interstate disputes, but is used extensively within the borders of states to insure the security of the ruling regime (Price-Smith, 2007). Thus, weakened security forces ultimately lead to a reduction in state capacity.

HIV/AIDS disproportionately affects the mining, transport, and agriculture industries, which are central to many African economies. From 1985 to 2002, in the

twenty-seven hardest-hit countries in sub-Saharan Africa, 7 million agricultural workers died from AIDS. Other key industries have been hard hit, and foreign and domestic investment have been impeded (M. Schneider & Moodie, 2002). This process takes place against a background of rising social service expenditures associated with preventing and treating HIV/AIDS that strain government budgets, reduce savings rates, and increase poverty (Poku, 2005). In the case of South Africa, in 2000, for every 100 workers, 23.2 were HIV-positive in the agricultural sector, 23.5 in the transport sector, 24.5 in the general government sector, and 23.9 in the construction sector (Gwinji, 2012).

Finally, Western powers may be reluctant to establish peacekeeping missions, which would work to dampen the effect of conflict, out of concerns about exposing their troops to HIV/AIDS (Copley, 1999). The United States has promoted a policy of training African peacekeepers to quell African conflicts in part to avoid exposing American troops to HIV/AIDS and other diseases, though political expediency is the primary driving force. However, the appropriateness of this strategy of devolving responsibility to African forces may be questionable given the degree of HIV infection and subsequent reduction in force strength and readiness. Troops in the seven armies that intervened in the DRC conflict may have had HIV prevalence rates of over 50 percent (Singer, 2002).

By undermining education and health systems, economic growth, micro enterprises, police and military units, political legitimacy, family structures, and social

cohesion, HIV/AIDS is thought to impact the critical infrastructure that sustain the security, stability, and viability of the nation-state (M. Schneider & Moodie, 2002). The 2000 U.S. National Intelligence Estimate identified HIV/AIDS and other infectious disease as threats to national security. While the first wave of the AIDS pandemic has already weakened institutions in southern and eastern Africa, many observers have been concerned that the epidemic will eventually undermine other countries including Nigeria, India, China, and Russia, which would present a clear threat to American strategic interests.

3.1.2 Grievances or Relative Deprivation

The second explanation is that political grievances give rise to discontent and eventually violence. Alexis de Tocqueville stated: “Almost all of the revolutions which have changed the aspect of nations have been made to consolidate or to destroy social inequality. Remove the secondary causes that have produced the great convulsions of the world, and you will almost always find the principle of inequality at the bottom” (De Tocqueville, 1900). A specific consequence of inequality is a sense of relative deprivation.

According to the relative deprivation hypothesis, increased deprivation creates frustration and aggression, which lead to social violence. Ted Gurr argues: “Discontent arising from the perception of relative deprivation is the basic, instigating condition for participants in collective violence” (Gurr 1970, p. 15). Relative deprivation is a tension

that develops from the perceived discrepancy between “men’s value expectations and their value capabilities.”¹ The greater the perceived difference between what a group believes it is entitled to and what they have the capabilities to obtain, the greater the discontent experienced, and in turn the more likely violence is to occur (T. Gurr, 1968b). It is widespread discontent that provides the general impetus to collective violence. The reference point of an individual or group may be his/her/their own past conditions, an abstract ideal, or a reference group. Differences in power values, interpersonal values, and welfare values, which include life and health, can all give rise to relative deprivation (T. R. Gurr, 1970).² For example, uneven ART provision is literally rationing the right to life, and treatment rationing is a fact in most African countries (De Waal, 2006).

There is some empirical support for this hypothesis. Greater measures of relative deprivation have been found to correlate with strife (T. Gurr, 1968a). Developing nations in particular are often characterized by relative economic deprivation. These states are at high risk for political instability, including strikes, demonstrations, riots, coups, and

¹ *Value expectations* are defined as “the goods and conditions of life to which people believe they are rightfully entitled.” *Value capabilities* are the goods and conditions to which people “think they are capable of attaining or maintaining, given the social means available to them.” (Gurr, 1970, p. 17).

² *Power values* are “those [values] that determine the extent to which men can influence the actions of other and avoid unwanted interference by others in their own actions...including the desire to participate in collective decision-making – to vote, to take part in political competition...” etc. *Interpersonal values* are the “psychological satisfactions we seek in nonauthoritative interaction with other individuals and groups,” including the “...desire for status...” *Welfare values* are “those that contribute directly to physical well-being and self-realization. They include the physical goods of life – food, shelter, health, and physical comforts – and the development and use of physical and mental abilities” (Gurr, 1970, p. 20).

even civil war (Feierabend & Feierabend, 1966). Inequality in land rights and possession has been found to undermine stable government and democracy (Russett, 1964).

Ethnic identity and cohesion, or lack thereof, also may have implications for how the epidemic is treated. HIV has often been problematic among those people who were marginalized, stigmatized, and discriminated against prior to the HIV epidemic (Mann, Tarantola, & Netter, 1992). In cases where ethnic identities and boundaries are strong, the dangers from HIV and AIDS are unlikely to be viewed as a shared risk. Lieberman (2009) argues that when countries have strong internal boundaries dividing societies into substantial and recognizable ethnic groups, the epidemic is also likely to be understood in terms of ethnicity. This frame of reference becomes a political constraint on national policies to combat AIDS. In ethnically divided countries, discourses about the risk of being infected and affected by AIDS are infused with ideas about ethnic differences. Ethnic conflicts intensify the political dynamic of assigning blame and attaching shame to information about the epidemic. As citizens and leaders seek to avoid the group shame associated with a stigmatized problem, the net effect is a dampening of potential support for AIDS policies, leading to weaker and slower responses.

Thus, government leaders are less likely to promote policies responding to the HIV/AIDS epidemic in states where marginalized groups were viewed as the source of the problem. The desire to retain the status of one's own social group, which is implicitly

relative to other groups, often results in scapegoating or marginalizing groups, and the downplaying of the problem among the elites in dominant ethnic groups to avoid self-stigmatization (Lieberman, 2009).

HIV/AIDS interacts with population pressures, such as migration and urbanization, to create a more volatile social and political environment. This can produce heightened competition for limited resources and foster intense intergroup rivalries, particular in countries with sharp ethnic or other sectarian divisions. Since governments have often been perceived incapable of addressing the problems caused by HIV/AIDS, a heightened sense of marginalization arises amongst affected populations, driving a stronger sense of deprivation and resentment. This can eventually lead to civil violence (Fourie & Schönteich, 2001). The demographic consequences of the epidemic are also important. Countries with youth bulges from 1990-2000 were three times more likely to experience civil wars, coups, or armed insurrections (Cincotta, Engelman, & Anastasion, 2003).

Political legitimacy may decline during the epidemic, due to the inability - or unwillingness - of the regime to respond to the epidemic appropriately. The stigmatization and discrimination generated by HIV/AIDS undercuts shared norms and values and erodes social cohesion within affected societies. On a procedural level, many governments' policies of rewarding acolytes with anti-retroviral drugs, while punishing political opponents by withholding such lifesaving treatments, further erodes

perceptions of governmental legitimacy. In the category of performance-related legitimacy, HIV/AIDS significantly undermines state capacity, and therefore compromises the effective delivery of required services to the populace, including education, health care, law enforcement, and military security. The demographic impacts of the contagion generate considerable negative effects on the productivity of workers, particularly those that are labor-intensive such as agriculture and mining. Collectively, an increase in HIV/AIDS prevalence will increase poverty levels throughout affected nations, and such increasing deprivation will undercut consensual perceptions of governmental legitimacy throughout the polity. HIV/AIDS-induced poverty may combine with diminished state capacity and the egregious misuse of governmental power to seriously diminish governmental legitimacy, setting the stage for increased political violence (Price-Smith, 2007).

The democratic process may be harmed if societies become polarized as a consequence of the epidemic (McInnes, 2006). HIV prevalence has been found to have a negative impact on social stability and domestic crime rates (Weinstein, 2006). Stigma from AIDS may lead to an excluded, alienated group of individuals who are more prone to crime or political violence (McInnes, 2006). Scholars have suggested that one group in particular may be vulnerable as a result of the HIV epidemic: orphans. Orphans, generated by the relatively high rate of deaths among those aged 15-49, are particularly vulnerable to recruitment by gangs or militant groups. Millions of children in sub-

Saharan Africa have lost one or both parents due to AIDS. Because the disease is sexually transmitted, children who lose one parent invariably lose the second. Orphans often experience prejudice and social exclusion and often lose access to education and healthcare. Studies have found that poor parental supervision, the lack of a father figure, and the loss of one or both parents are all associated with a greater risk of violent crime (Schönteich, 1999).

By exacerbating economic inequality and reducing the ability of affected populations to realize interpersonal and welfare values, HIV/AIDS may trigger violent conflict. As discussed above, the burden of the disease falls heavily on the poor, exacerbating income and social inequalities between classes. Relatedly, economic contraction generated by contagion will lead to increased competition over scarce resources, fostering increased competition between elites, classes, and ethnic groups. The loss of vital human capital in the civil service, judiciary, and other important bureaucracies will also undermine essential state services, including social welfare programs that would address inequality. Stagnant or even reduced GDP growth may also give rise to a decline in social circumstances that some relative deprivation proponents argue is the necessary spark for violence. All these factors may lead to grievances consistent with relative deprivation theory, and may provide sufficient motivation for civil violence.

Recent research has found a strong match between violent outbreaks, ranging from wars to terrorism, and the ratio of a society's young male population and its more mature segments. AIDS orphans are often malnourished and stigmatized, and this mass of disconnected and disaffected children is particularly at risk for exploitation by criminal gangs or by groups that employ child soldiers (Singer, 2002). These individuals are often bereft of the social institutions and economic alternatives that would prevent their marginalization and potential recruitment as gang members, militants, or revolutionaries (Elbe, 2002). Moreover, the World Bank estimates that the orphan burden in Burundi and Uganda costs each country approximately 2.5 percent of each state's GDP growth annually (Subbarao & Coury, 2004). Thus, the burden of a youth bulge and the sheer number of orphans is predicted to, at a minimum, result in an increased crime rate, and possibly social unrest and civil violence.

These theories provide insight into how the HIV/AIDS epidemic may lead to violence and conflict through well-established mechanisms. In this study, I am indifferent about which hypothesis, grievances or opportunity costs, generates violence. Both factors likely place a role in creating the circumstances in which a conflict may be sparked, particularly in the context of the social, political, and economic impact of the HIV/AIDS epidemic. Having introduced the ways in which HIV/AIDS may lead to conflict, I now turn to counterarguments and evidence that calls into question the strength of association between the HIV epidemic and civil violence.

3.2 Counter-evidence and Counterarguments

Despite the initial appeal of the arguments in the preceding section, arguments that HIV/AIDS will lead to state failure and war have limited evidence to substantiate them thus far and may represent worst-case thinking. There is no empirical analysis to date that suggests HIV/AIDS has led to an increased risk of conflict in a country (McInnes, 2006), although this relationship has not seen rigorous testing. Dire predictions that the epidemic would devastate the institutions of so-called second-wave states, such as Russia, also appear to have been overblown. Feshbach (2008) notes that the predicted national-level impact of HIV/AIDS in Russia has failed to materialize. Fears that many African militaries would collapse due to HIV/AIDS have not materialized, though serious concerns remain.

To begin, evidence suggests soldiers are actually significantly less likely to be HIV positive than initial studies would suggest. Though it has long been thought that HIV prevalence within military units was far in excess of general populations in their respective countries, recent studies have found prevalence rates mirror those of the general population in both South Africa and Ethiopia, both of which have long been considered to have militaries with high prevalence rates (Becker, Theodosis, & Kulkarni, 2008; Berhe, Gemechu, & Waal, 2005). Compulsory testing programs may in part have

helped with this decline, as new recruits are now required to be HIV negative (Whiteside, De Waal, & Gebre-Tensae, 2006).

Soldiers are often poorly paid and stationed in remote areas where prevalence is low. Therefore they may not have as many sexual partners or be able to afford to solicit commercial sex workers with the frequency many thought. Sex workers also are organized hierarchically, with specific groups associated with enlisted, NCOs, and junior officers. These closed groups limit the spread of HIV by limiting the mixing of sexual networks. The pyramid structure of military rank also ensures redundancy; there are always more candidates for higher ranks than there are billets. Militaries are designed to handle losses from combat. Loss due to HIV may be significant, but can be dealt with over a period of time (McInnes, 2006).

Many sub-Saharan countries have developed individualized HIV prevention plans for their militaries, which often include education, counseling, promotion of condom use, and attempts to de-stigmatize the disease. However, the extent to which the programs have been successful is not entirely clear (Yeager, 1995). However, some data suggests that HIV prevalence of military units appears to stabilize to that of the population in which it is stationed (Becker et al., 2008). In addition, there is little evidence that militaries engaged in conflict acquire significantly higher HIV prevalence as a consequence (Ba et al., 2008).

However, even if HIV infection rates among military personnel are equal to the surrounding civilian population, HIV/AIDS would still pose a major problem for many African armed forces given that country prevalence rates have reach nearly thirty percent in some cases. And though recruits are screened, AIDS-related illnesses have largely killed senior, hard to replace soldiers and officers, despite redundancy (de Waal, 2005).

Recent works have called other mechanisms into question. Dutta and Barnett (2007) and Sato (2008) both fail to find a statistically significant cross-national relationship between AIDS and conflict, but the analyses failed to appropriately test the hypothesis. Sato conducted a medium-n analysis using a random sample of all low and middle income countries and so did not include a number of the countries that are most likely to be affected by this relationship.

Analyses at the local level are mixed. Chirambo and Steyn (2009) find that local government capacity in South Africa has been substantially degraded by HIV/AIDS. However, in India and Indonesia (both second-wave states), similar effects on local governance have failed to develop. Jacob (2008) investigated the impact of HIV/AIDS in the Indian states of Manipur and Nagaland, which have the highest prevalence of HIV in the country. He found no evidence for governance impacts of the epidemic. At most, his data contain inconclusive hints that the epidemic, in conjunction with the insurgency and a crisis of injecting drug use, may be contributing to a higher rate of attrition among

civil servants. In the Indonesian province of Papua (Irian Jaya), which has the highest HIV prevalence in the country, Smith (2008) found no indication that the epidemic was causing human resource losses sufficient to undermine service delivery or legitimacy of the local government.

Another reason that the epidemic may not have led to outbreaks of violence and state failure is that increased morbidity and mortality may perversely have led to an increase in the value for those who have survived the epidemic relatively unscathed. As noted above, the economic decline due to HIV/AIDS has likely been mitigated by the fact that there is an excess unskilled labor in much of sub-Saharan Africa. Thus, economies such as Rwanda, Botswana, and South Africa have continued to boom in the midst of a terrible epidemic. Politically, autocratic rulers may be pressed to allow more democratic participation and address inequalities for survivors due to the relatively greater importance they assume by virtue of their relative scarcity. Somewhat sadly, increased mortality may also reduce resource scarcity, particularly water, food, land and natural resources, leading to reduced incentives for violence based on the state weakness hypothesis. Inequalities of course may still exist.

In the ten years since HIV/AIDS was declared a security issue by the UN, it has become evident that the disease has not produced the instability and insecurity in sub-Saharan Africa that was expected by many observers. The collapse of state structures many feared has yet to materialize. However, governance has been a challenge in the

most severely affected countries. It is likely that the epidemic has weakened institutional structures, and in those countries most severely affected by the epidemic, may be responsible for creating “fading” rather than failing states (Barrett, 2010).

In sum, these competing hypotheses and evidence give rise to the justification for this study. This paper therefore makes an additional contribution by analyzing the influence of infectious disease upon violent social conflict, as well as civil war. In the next chapter I test the robustness of the supposed relationship between HIV/AIDS and civil violence.

4. HIV/AIDS, Civil Conflict, and War: A Quantitative Test

To what extent does the HIV/AIDS epidemic undermine state security and increase the likelihood of civil conflict and violence? In this chapter I employ data on HIV to test the relationship between the disease and conflict, as measured by civil war onset and civil violence. Based on the statistical analyses employed in this chapter I argue that, while tentative, there is empirical evidence that suggests that the epidemic may lead to societal instability and civil violence. However, I do not find evidence to substantiate the claim that HIV/AIDS may lead to civil war.

As discussed in the previous chapter, the HIV/AIDS pandemic has been recognized as a threat to global security. This is based not on the idea that HIV/AIDS itself is a security problem, but rather that the aggregate impact of the disease on the institutions integral to a functioning society poses a threat to stability, national security, and peacekeeping forces (Heineken, 2003). By weakening state capacity, slowing economic development, and disrupting social institutions, it has been argued that HIV/AIDS has the potential to cause state failure and conflict in the states most severely affected by the epidemic.

4.1 Data and Methods

4.1.1 Independent variables

Measures of HIV are taken from the World Health Organization. HIV rates represent the percentage of the population, ages 15-49, infected with HIV, the population most likely

to be affected by the disease. These are also the individuals most likely to take actions contributing to civil violence. Based on the current literature, HIV/AIDS seems the most likely candidate for increasing the risk of civil conflict and violence. This data is publicly available from 1990 to 2012 from the World Health Organization's Global Health Observatory data repository.

While HIV/AIDS is a serious disease which is eventually fatal if untreated, the disease process allows time between detection and significant reductions in health, including a number of significant comorbidities. It is the grievances and damage to productivity from the complications of AIDS that are most likely to generate conflict. Therefore, I run regressions using one-year, three-year, and five-year lags. While AIDS normally develops after a median time period of eight to ten years in developed countries, the time to the development of AIDS is usually shorter in developing countries and among the indigent, between 3 to 5 years.

4.1.2. Dependent Variables

For the initial logistic regressions, the dependent variable is a binary measure of conflict, where the variable takes a value of 1 for civil war onset in a given country-year and 0 otherwise. This measure is drawn from the PRIO/Uppsala data on conflict. For the subsequent Poisson/negative binomial regressions on civil violence, data is drawn from the Banks' Cross-National Time-Series Data Archive, a leading dataset on political violence (Banks, 2014). This paper utilizes eight operationalizations of political violence.

Developing nations in particular are often characterized by relative economic deprivation. These states are at high risk for political instability, including strikes, demonstrations, riots, coups, and even civil war (Feierabend & Feierabend, 1966).

Assassinations: Any politically motivated murder or attempted murder of a high government official or politician.

General strikes: Any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority.

Guerilla warfare: Any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime.

Government crises: Any rapidly developing situation that threatens to bring the downfall of the present regime – excluding situations of revolt aimed at such overthrow.

Purges: Any systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition.

Riots: Any violent demonstration or clash of more than 1000 citizens involving the use of physical force.

Demonstrations: Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature.

Revolutions: Any illegal or forced change in the top governmental elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government.

4.1.3 Control Variables

A number of control variables are typically included in analyses of civil conflict. These include regime type, population, state income or measure of economic development, ethnic fragmentation, and a history of civil conflict.

Regime type – Polity: In the case of regime type, this analysis incorporates the measure of democratic institutions provided by the Polity data project. The Polity scale ranges from -10 to 10, where a value of -10 would represent an extremely autocratic state, and a state with a value of 10 would be a highly democratic state. A higher level of democracy is typically associated with a decreased risk of civil conflict. I use the common convention of adjusting the values so that they begin at zero.

Development: The richer a state the greater state capacity; therefore a measure of national development is included in the analysis. In this analysis, development is measured by per capita income measured in thousands of U.S. dollars and lagged one year. An increase in national income/development should be associated with a decreased risk of conflict. This is due to the greater state capacity resulting from greater revenue, as well as fewer people in poverty, which should reduce grievances and increase the opportunity cost of taking up arms.

Economic growth: Annual growth in GDP per capita, drawn from the World Bank WDI. Collier and Hoeffler (2004) include economic growth as a proxy for new income opportunities and thus may represent opportunity cost of violence against the state. Economic growth should be associated with a decreased likelihood of civil war onset.

Population: Countries with larger populations have long been hypothesized to be more likely to contain a group eager to rebel and face greater demand for scarce resources. It may also make it more difficult for a state to police its population. In this analysis, population figures are drawn from the World Bank data on the total number of citizens in a state. A larger population should be associated with an increased risk of civil war onset and violence.

Ethnic heterogeneity: The degree of ethno-linguistic fractionalization (ELF), also referred to as “ethnic fragmentation,” is drawn from Fearon and Laitin (2003). This variable expresses the probability that two randomly chosen individuals in a country are from different ethnolinguistic groups. A greater degree of ethnic fragmentation has generally been hypothesized to increase the risk of conflict and violence.

Mountains: The proportion of the country that is mountainous as coded by geographer A.J. Gerard. Due to the difficulties of traversing mountainous terrain, and the tendency of many insurgents to reside there, governments may experience challenges policing these areas and countering insurgent activity.

Noncontiguous territory: Fearon and Laitin (2003) argue that noncontiguity is associated with an increased risk of civil war. They define noncontiguous countries as those with territory containing at least 10,000 individuals and separated from the territorial area containing the capital by either 100km of land or water.

4.1.4 Methods

I use a logistic regression model to estimate the probability of conflict for a given state at time t conditional upon HIV prevalence and relevant control variables suggested by the literature on civil war. This analysis focuses on sub-Saharan Africa, since this is the region of the world where the greatest impact of HIV should be evident. Due to data limitations, the model covers observations from 1990 to 2012. Due to the bias introduced by possible duration dependence with binary time-series cross-sectional data, confirmed by the rejection of the null hypothesis of temporal independence by likelihood ratio test, I use a piecewise cubic polynomial to model duration dependence (N. Beck, Katz, & Tucker, 1998; Carter & Signorino, 2010). This approach has the advantage of being easy to implement and interpret, while generally performing as well as splines.

For subsequent tests, I use Poisson regression models to estimate the influence of infectious disease on several measures of civil violence. This is due to the nature of the data used to measure civil violence, which is a count of each type of event. I also ran robustness checks using negative binomial distributions and logit regression to ensure my results are not specific to a particular model specification. In particular, logit

regression serves to ensure that the violation of the assumption of event independence, which underlies Poisson and negative binomial models, does not produced biased results.¹ In these models, standard errors are clustered on countries and estimated using Huber-White robust standard errors (Huber, 1967; White, 1980).

4.2 Results

4.2.1 Infectious Disease and Civil War Onset

Table 1: Civil war onset and HIV

	Model 1 (25 battle deaths)	Model 2 (1000 battle deaths)
HIV	-0.122* (0.051)	-0.132* (0.059)
Intercept	-0.808* 0.311	-2.638* 0.389
	N=836	N=836

* indicates $p < 0.05$, robust SE in parentheses, clustered on countries

Table 1 includes two models. Model 1 and 2 represent bivariate regressions with a one-year lag of HIV prevalence as the independent variable. In the first model, a threshold of 25 battle deaths is used to determine onset of civil war. In the second

¹ Poisson regression models assume events are independent; however, if serial dependence is present, the exact degree of inefficiency or bias is unknown. Lagged DVs are inappropriate because the exponentiated coefficient on the lagged variable is no longer an autocorrelation coefficient but a growth rate (in the case of Poisson error distribution). Standard time-series diagnostics, as described in Cameron and Trivedi (1998), involve standardizing the count time series and then computing the autocorrelation function of the standardized counts. In the event serial correlation is noted, one solution is the Poisson Exponentially Weighted Moving Average (PEWMA) model, described in Brandt, et al (2000). In this case, only some of the models display serial autocorrelation, and in no cases were the results from the PEWMA models substantively different.

model, the threshold is increased to 1000 battle deaths. In both cases, HIV appears to be statistically significant and associated with a decreased risk of civil war onset.

However, once confounding variables are entered into the regression, HIV ceases to be statistically significant.² Model 3 (Table 2) represents a standard model of civil war, without including the independent variable (HIV prevalence) or static predictors.

Consistent with prior results, development is statistically significant and associated with a decreased risk of civil war onset. Population is also statistically significant; larger populations are associated with larger risk of civil war onset. Polity and economic growth are both statistically insignificant at convention levels. The coefficients of the cubic polynomial used to model temporal dependence are also statistically significant. In model 4, HIV prevalence is added to the base model. Neither the size nor the statistical significance of the control variables change; however, HIV is not statistically significant.

² Note that all subsequent models in this chapter use the lower threshold (25 battle deaths) for civil war onset. After replicating all regressions with the higher threshold, the results remained largely identical, especially with regard to the importance of HIV prevalence.

Table 2: Civil War Onset

	Model 3	Model 4
HIV	-	-0.044 (0.030)
Development	-0.399* (0.012)	-0.368* (0.155)
Economic Growth	0.012 (0.010)	0.013 (0.010)
Population	0.276* (0.100)	0.296* (0.105)
Polity	-0.001(0.022)	-0.005 (0.024)
Peace Years (t)	-1.958* (0.243)	-2.030* (0.024)
Peace Years (t ²)	0.309* (0.053)	0.328* (0.058)
Peace Years (t ³)	-0.014* (0.003)	-0.015* (0.003)
Intercept	-1.269 (1.876)	-1.596 (1.901)
	N= 855	N=833

*** indicates $p < 0.05$, robust SE in parentheses, clustered on countries**

In Table 3, civil war onset is modeled using a fully-specified model, including static predictors (noncontiguous territory, mountains, and ethnolinguistic fractionalization). HIV remains statistically insignificant, though it is still associated with a lower risk of civil war onset. Economic growth is statistically significant and associated with lower risk of war onset. Noncontiguous territory is statistically significant and associated with an increased risk of civil war onset. Mountains are associated with an increased risk of conflict but just barely miss significance at $p < 0.05$ (though they are statistically significant at $p < 0.10$). The cubic peace years polynomial terms remain statistically

significant. ELF, Polity, economic growth, and population are statistically insignificant at conventional levels. These findings hold for two, three, four, and five year lags. See the Appendix for three and five year lags of HIV.

Table 3: Civil War Onset – Full Model

	Model 5
HIV	-0.062 (0.036)
Development	-0.417* (0.187)
Economic Growth	0.010 (0.011)
Population	0.141 (0.108)
Polity	0.015 (0.025)
Peace Years (t)	-1.934* (0.255)
Peace Years (t ²)	0.313* (0.055)
Peace Years (t ³)	-0.015* (0.003)
Noncontiguous territory	0.871* (0.378)
ELF	0.793 (0.801)
Mountains	0.281 (0.147)
Intercept	N= 833

* indicates $p < 0.05$, robust SE in parentheses, clustered on countries

4.2.2 Infectious Disease and Civil Violence

Tables 4 and 5 contain the results from regressing civil violence variables – assassinations, government crises, purges, riots, strikes, demonstrations, guerilla war, and revolution – on HIV prevalence and likely confounding variables.³ Subsequent regressions using longer lags are available in the Appendix. As can be seen below, riots, strikes, and demonstrations are associated with higher HIV prevalence and are statistically significant at conventional levels. Surprisingly, the number of revolutions and the presence of guerilla warfare seem to decrease with higher HIV prevalence.

Results using three and five-year lags of HIV prevalence are available in the Appendix. In both cases, the results remain similar. Using three year lags, HIV prevalence is associated with an increased number of strikes, riots, and demonstrations, but a decreased number of revolutions and guerilla war. The same is true using a five-year lag; however, strikes and demonstrations fall below statistical significance by year $t-5$.⁴

³ Noncontiguous territory, mountains, and ethnic fractionalization are dropped from the time-series Poisson regression because they are static variables.

⁴ Results are from time-series Poisson models. The results are confirmed with negative binomial models, as well as logit models with any number of events greater than 0 coded as a 1 to check the robustness of the results in case the data violate the assumption of event independence.

Table 4: Poisson Regressions – 1-year HIV lag

	Strikes	Demonstrations	Guerilla War	Revolutions
HIV	0.046* (0.025)	0.054** (0.019)	-0.183** (0.055)	-0.080** (0.034)
Development	1.879 (1.285)	1.668** (0.467)	0.258 (0.268)	-0.859** (0.221)
Growth	-0.100** (0.039)	-0.033** (0.017)	-0.572** (0.177)	-0.019** (0.007)
Population	-5.458** (1.721)	0.168 (0.704)	0.960** (0.289)	-0.042 (0.127)
Polity	0.065 (0.064)	-0.027 (0.032)	0.031 (0.048)	0.041* (0.023)
	N = 833			

* indicates $p < 0.10$, ** $p < 0.05$, robust SE in parentheses, clustered on countries

With regards to the confounding or control variables, economic development as measured by GDP per capita was associated with an increased risk of most forms of civil violence. The only exception to this finding was revolutions. Economic growth was found to be associated with a decreased number of events and was statistically significant for demonstrations, guerilla war, revolutions, and riots. Population was statistically significant in the models using purges, strikes, and guerilla war. Finally, Polity was statistically significant only in the model regressing revolutions on HIV

prevalence, where higher levels of democracy were associated with a higher number of revolutions (or revolutionary attempts at regime change). In all other models, Polity was statistically insignificant at conventional levels.

Table 5: Poisson Regressions – 1-year HIV lag

	Assassinations	Government Crises	Purges	Riots
HIV	-0.056 (0.072)	-0.020 (0.070)	-0.081 (0.220)	0.128** (0.040)
Development	0.827 (1.001)	1.042 (0.927)	5.710** (1.721)	2.294** (0.667)
Growth	-0.024 (0.019)	-0.027 (0.018)	-0.010 (0.062)	-0.022* (0.013)
Population	-2.250 (1.576)	-2.743 (1.748)	6.062** (2.483)	-0.385 (0.767)
Polity	0.056 (0.050)	0.051 (0.041)	-0.037 (0.106)	-0.012 (0.032)
	N = 833			

* indicates $p < 0.10$, ** $p < 0.05$, robust SE in parentheses, clustered on countries

4.3 Discussion

Several notable – and in some cases, surprising – results emerge from the above analyses. First and foremost, I find little evidence to substantiate the hypothesis that the HIV epidemic increases the risk of civil war. While I find that HIV is associated with civil war in bivariate regressions, the effect is statistically insignificant once likely confounders are taken into account. However, it should be noted that in all models HIV

prevalence is associated with a reduced risk of civil war onset, the opposite direction predicted by most theories. In model 5, the fully specified model, HIV is not significant at $p < 0.05$. It is statistically significant with a slightly lower threshold ($p < 0.10$); however, it is still associated with a decreased risk of civil war onset. The sign of the coefficient remains negative when longer lags are taken into account (see the Appendix for these results). I presented analyses using HIV/AIDS prevalence including one, three, and five year lags, but including longer lags to allow the impact of HIV/AIDS mortality and morbidity over a greater period of time provides similar results (though the sample size diminishes with each extra year of lag).

While not unexpected, it is still notable that higher rates of HIV/AIDS consistently led to high civil violence in sub-Saharan Africa, as measured by riots, demonstrations, and strikes. However, analyses of revolution and guerilla warfare reveal a negative and statistically significant association with HIV/AIDS.

What might explain these results? Perhaps this finding is due to the fact that, at least in the short term, HIV/AIDS weakens both state and civilian/rebel populations, and in particular the pool of military-age men most likely to engage in various forms of conflict. Another possible explanation, as will be discussed in subsequent chapters, is that this finding is due to the fact that peace and prosperity, and the associated movement and mixing of people, drives the epidemic. Thus, HIV prevalence is likely to be higher in those places where there is less violence. Guerilla warfare and revolutions

might be serious enough to disrupt normal societal relations and mixing that are essential to the spread of a virus such as HIV.

Another explanation is the potentially endogenous relationship between HIV/AIDS in a given year, violence, and state capacity. When lagged three or five years, the epidemic has a chance to impact society via increased morbidity and mortality and is not endogenous to state capacity in year t . Surges in HIV/AIDS prevalence or deaths will impact society several years after the fact. However, when the lag is relatively short, HIV/AIDS may be endogenous to state capacity and violence. Thus, this relationship may obscure the impact of the disease, or reflect the fact that societies at peace sometimes have higher HIV/AIDS rates than those in conflict due to population mobility and mixing.

Nevertheless, there is evidence to suggest that HIV/AIDS is associated with certain types of civil violence in sub-Saharan Africa. The lack of evidence of an association with civil war is perhaps unsurprising, given that this is the most serious form of civil violence. Even if riots, strikes, and demonstrations are not due directly to HIV/AIDS, the disease may contribute to declines in state capacity, legitimacy, and produce grievances that promote an environment of political instability in a region of the world already destabilized by poverty, famine, human rights abuses, and poor governance. The negative association between HIV/AIDS and guerilla war and

revolutions seems unlikely to be causal; one possible explanation will be discussed in Chapters 6, 7, and 8.

4.4 Conclusion

What conclusions are we to draw from this analysis? While tentative, the results of this chapter indicate that inadequate public health conditions may increase the risk of civil violence, though a descent into the chaos of state collapse and civil war is unlikely. Thus, while funding for programs such as the United States' President's Emergency Plan for AIDS Relief (PEPFAR) have been, in part, predicated on the belief that HIV/AIDS poses a threat to state security, these fears appear somewhat exaggerated. It is true that some violence in sub-Saharan Africa appears to be associated with HIV prevalence. However, mounting evidence suggests that state failure and civil wars are unlikely to results from HIV/AIDS. This does not in any way reduce the significance of the global burden of disease caused by HIV/AIDS. However, it does mean that the securitization of the disease should be appraised more critically by policy-makers.

That being said, this analysis also suggests that lower levels of civil violence may stem from the effect of HIV/AIDS on state capacity and governance. Given the programs designed to address, and attention paid to, HIV/AIDS precisely because it was cast a security issue, it is possible that such theories were a victim of their own success. Fears of elevated HIV rates among militaries in sub-Saharan Africa may have been overstated, but at a minimum these prevalence rates have been reduced through deaths and

changes in policy. Many militaries in severely affected states have responded aggressively to HIV. Convinced that HIV was a threat to their operational capacity and state security, militaries and security forces implemented mandatory testing, exclusion of HIV positive individuals, and even made unit commanders responsible for keeping HIV rates low among their soldiers in some cases. Such approaches have proven successful in South Africa, Uganda and Ethiopia (de Waal, 2010a).

Catastrophic consequences never materialized precisely because states, both developing and developed, took the risks seriously. Militaries prefer to implement policies of compulsory HIV testing and the selective exclusion of those who test positive from recruitment, promotion or deployment. This contradicts best practice in the civilian sector, as well as accepted human rights principles (de Waal, 2010b); however, it has the advantage of being effective in reducing HIV/AIDS prevalence in a key state institution.

In addition, a number of resources have become available to fight the epidemic, including PEPFAR, the Global Fund to Fight AIDS, Tuberculosis, and Malaria, and significant funds from the World Bank. Sero-surveillance systems have improved in many countries, and technical assistance from the WHO has greatly improved the programmatic responses taken by Africa governments to the disease (Gorbach, Ryan, Saphonn, & Detels, 2002).

After four years of PEPFAR activity, HIV-related deaths decreased in sub-Saharan Africa “focus” countries compared with countries that were not selected to

receive PEPFAR funds. However, trends in adult prevalence did *not* differ between countries selected for funding and those that received no funding. While PEPFAR recipients were selected in part due to subjective evaluations of having enough capacity to successfully use the additional funding, the trajectories of the epidemics were substantively similar prior to the administration of PEPFAR funds (Bendavid & Bhattacharya, 2009). From 2004 to 2008, an estimated 631,338 HIV-related deaths were averted by PEPFAR funding (Bendavid, Holmes, Bhattacharya, & Miller, 2012). Half of PEPFAR funds were spent on antiretroviral drugs and treatment infrastructure, and one-third was earmarked for abstinence-only programs. This distribution of funding likely explains these results, as the reduction in HIV-related deaths is likely due to improved treatment, including greater availability of HAART.

Since the end of the Cold War, and the support systems that sustained weak states, the context in which African states survive or fail has changed markedly. While civil conflicts erupted in the demise of Cold War superpower support, there are now a number of life-support systems for failing democracies and mechanisms for intervening when crises do occur. The African Union and sub-regional organizations have essentially outlawed coup d'état and have acted decisively in enough cases to often deter such drastic rebellion (De Waal, 2006).

The results from sub-Saharan Africa suggest that treating the influence of disease identically across all contexts is a mistake. The effect of HIV/AIDS is not monolithic.

Indeed, one of the most promising avenues for future research would be to examine the political and social consequences of infectious disease, as well as other aspects of public health. This would require a large, collaborative effort between researchers in all fields of social science, as well as medicine and public health. It also represents an opportunity for political science to catch up to the other social sciences in contributing to the literature on public health.

Other extensions of this paper are certainly possible. This study did not include interstate events. If a state's capacity is reduced by infectious disease or public health conditions more generally, this may be observable to other states. If indeed observable to neighboring, hostile states, it may make a state more likely to be targeted in international war or militarized interstate disputes.

This study does not attempt to distinguish between the mechanisms that lead from substandard public health conditions to civil war and violence. Given that there appears to be preliminary evidence for this link, it remains important to identify and explore the causal mechanisms driving this process.

While this study acknowledges the endogenous relationship between civil war, violence, and health, and represents an important counterpoint to studies that ignore this endogeneity, it does not solve the problem. An ideal analysis conducted to establish causality would make use of an instrumental variable to capture or avoid entirely the issue of endogeneity between state capacity, violence, and health. However, finding an

instrumental variable that manages this has not yet been successful. I utilize a different approach to address potential endogeneity in Chapter 7. Future research should pay additional attention to the impact public health may have on security, and in particular should continue to explicate the conditions under which deleterious public health conditions may lead to civil strife and conflict. We now turn to an examination of cases that will illuminate some of the links between HIV/AIDS and conflict, as well as why the epidemic has not led to civil war and state failure.

5. How Political Institutions Address AIDS

The results of the quantitative analyses in the previous chapter suggest that while associated with lower levels of civil violence, the HIV/AIDS epidemic has not resulted in civil war, revolutions, or guerilla war. Is this because the causal mechanisms are unsound, or because the relationship is too indirect and mediated by a number of factors? Or perhaps countries took successful preventative measures to avoid the predicted calamity? In this chapter I examine two cases that demonstrate how different political institutions have allowed nation-states to cope with the HIV/AIDS epidemic thus far.

In the case of South Africa, though there is some evidence of civil violence due to the disease, the government has been successful in managing the epidemic due to its status as a middle income country and the availability of channels to influence the regime. In the case of Uganda, an aggressive, centralized state used repressive tactics at the local level to drive behavioral change and contain the HIV epidemic. Both cases also illustrate the interplay between state instability and HIV/AIDS.

Selecting case studies requires choosing between states with a wide range of HIV prevalence, which vary significantly even within sub-Saharan Africa, as well as countries with very different levels of economic development and AIDS spending. South Africa is essentially a middle income country with largely self-financed AIDS treatment, education, and prevention programs. The post-apartheid government inherited strong

health bureaucracies and a relatively advanced health care system. In contrast, Uganda is a low-income country that relies almost entirely on donors for financial support and NGOs for policy implementation (Lule & Haacker, 2011). After the civil war that resulted in the overthrow of Idi Amin, the infrastructure of the country was in shambles. While both states have semi-democratic regimes, Uganda has gradually become more autocratic. Thus, the two cases represent countries that vary on the spectrum of relevant variables, including HIV prevalence, economic development, political institutions, and the presence of prior conflict.

5.1 Uganda

Uganda is considered by most observers, donors, and organizations to be one of the earliest and most compelling national success stories in combating the spread of HIV (Green, Halperin, Nantulya, & Hogle, 2006). However, the situation was not always so promising. In 1995 the World Bank warned that the gains of the child survival revolution had already been reversed in Uganda. Scarce resources were being diverted from preventable and treatable ailments to AIDS. Investments in education and the accumulation of human capital were threatened and likely difficult to replace, given the deaths among teachers and families. The size and quality of the labor force was predicted to decline precipitously (Armstrong, 1995).

Uganda was widely viewed as the worst HIV/AIDS-affected country in the world by the late 1980s (Allen & Heald, 2004). Moreover, Uganda had a recent history of

violence and civil war, coups, and little development to secure prosperity and reinforce state capacity. In addition, the population of over twenty million is divided into numerous different language groups. Yet, except for the ongoing counterinsurgency with the Lord's Resistance Army (LRA) in the northern part of the country, Uganda has seen relative peace and prosperity since Yoweri Museveni's rise to power in 1986. There is little evidence that HIV/AIDS contributed to a significant decline in state capacity or led to violence. Uganda demonstrates how a country with relatively few resources and little state capacity can capitalize on a centralized political regime to mobilize public opinion, coopt civil society, and use non-traditional means to enforce policy.

5.1.1 The Beginning of the Epidemic and the Uganda Success Story

The first cases of HIV appeared among people in the southwestern region of Rakai; it is believed that the virus was established in high-risk groups there and in Kampala by the late 1970s. Economic collapse, population dislocations, and illicit economic activities such as smuggling contributed to the early spread of the virus. Young women turned to the sex trade, particularly along trade and communication routes. The southwestern region of Uganda also experienced the movement of armies. In 1978, Idi Amin proclaimed the Kagera region of Uganda *irredenta*, sending bombing raids over the border in an attempt to take the region. In response, the Tanzanian government raised a volunteer army, which massed in Bukoba. Epidemics of syphilis, gonorrhea, and a new sexually transmitted disease with symptoms no one had seen

before emerged. The disease spread rapidly through the new and complex sexual networks; years later, nearly a quarter of all adults in Bukoba would be identified as HIV positive. Across the border in the towns of southern Uganda – Masaka, Rakai, Kampala – the HIV infection rate would eventually soar as well (Epstein, 2007). In response to Idi Amin's aggression, Ugandan rebel forces and invading Tanzanian forces overthrew the government of Idi Amin in 1979. Within a few years, Yoweri Museveni and the National Resistance Movement would overthrow the oppressive second administration of Apolo Milton Obote after several years of guerilla warfare, establishing a reasonably stable and democratic government.

In 1982, Uganda became the first African country to identify patients suffering from AIDS. However, unlike in Western countries, it was immediately clear that the disease affected everyone: children, housewives, businessmen, taxi drivers, teachers, soldiers, civil servants, and doctors alike (Epstein, 2001). In Uganda, virtually everyone has had an immediate blood relative die from the disease.

Political authorities and officials in the Ugandan Ministry of Health in the regime of Milton Obote were as much in denial about AIDS as elsewhere in Africa. Despite the deaths due to "Slim," a wasting disease identified in the Rakai district, which was later recognized as AIDS, doctors working in Uganda were forced to bypass the Ministry of Health to have blood samples analyzed in the UK. In response to deaths due to AIDS in the cities of Kasensero and Lukunyu, documented by a district medical officer, the

government insisted the disease was due to poor sanitation. Ultimately, the regime was too concerned with clinging to power to address the growing AIDS epidemic (Putzel, 2004).

President Yoweri Museveni was one of the first African leaders to accept his country's growing AIDS problem. According to his public statements, he had a clear, pivotal moment when his awareness of the seriousness of the epidemic began. During his first year in power (1986), he was informed that 30 percent of the Ugandan military delegation sent to Cuba for training was HIV-positive (Putzel, 2004). Soon, large numbers of soldiers and officers began dying from the disease, creating leadership vacuums within the officer corps and the ranks of experienced NCOs. In 1987, Uganda began to develop an AIDS Control Program in consultation with the WHO, the first of its kind in Africa. The focus of the program was on the armed forces. With a high prevalence rate and insurgency in the North - where HIV/AIDS rates continued to increase in the mid-1990s - the demand for fit soldiers and commanders remained high. As a result, regular testing, prevention, and awareness training were key elements of the Ugandan military response to the epidemic in its ranks. These policies resulted in a clear decrease in prevalence rates. Compared to the civilian population in the war-affected areas of Northern Uganda, the military has *lower* prevalence rates now (Bakahumura, 2012).

Despite the early policy announcements on HIV/AIDS, it was not until 1988 that major action was taken. The NRM regime was slow to cooperate with the National Committee for the Prevention of AIDS, which dug in its heels after a scathing report in *The Guardian* cited Uganda as the source for the spread of HIV to Kenya due to rampant prostitution, unhygienic medical facilities, and widespread opposition to condom use by programs sponsored by religious organizations.

However, by 1988 Museveni had begun to move on HIV. He would come to characterize fighting AIDS as a “patriotic duty,” requiring strong leadership all the way to the village level (Green et al., 2006). The government would later characterize its approach as emphasizing the ABCs: Abstinence, Be Faithful, and Use Condoms. Despite the initial focus on the armed forces, the Ugandan government’s AIDS policies included a comprehensive, cross-cutting and multi-sectoral approach to the epidemic. It involved all relevant stakeholders, and went beyond taking care of the sick and raising awareness in the general population by emphasizing sustainable prevention measures. The program integrated public agencies, NGOs, and civil society broadly. Museveni invited Western charities to establish prevention campaigns and Western researchers to study the epidemic. Condoms were made more broadly available, and in many places radio programs even described in precise, almost tedious detail how to use them (Epstein, 2001). Worried that radio and television messages would not reach the village level,

Museveni insisted that all public officials discuss AIDS and how to prevent transmission of the disease at virtually all meetings.

Hundreds of NGOs and religious groups worked to prevent the spread of HIV/AIDS in Uganda. The NGOs were largely responsible for developing and disseminating practical prevention measures and were crucial in referring individuals to HIV education, prevention, treatment and counselling services (J. O. Parkhurst, 2002). The Catholic Church established well-funded programs to help combat the disease, and Muslim clerics declared *jihad* on the disease (De Waal, 2006).

The President was personally and actively involved in AIDS public awareness programs; in particular, Museveni championed the ABC model. Emphasis was placed on teaching youth the virtues of abstinence. Museveni himself undertook public education on HIV, including an ongoing series of radio messages urging men to change their behavior. Museveni encouraged men to be sexually responsible and encouraged mutual fidelity. Museveni highlighted the importance of promoting sexual behavior change and equity between men and women (Putzel, 2004).

Around 40 percent of Ugandan women have experienced some form of sexual violence in their lives. Societal restrictions on women often reduce their ability to maintain economic and physical security, and societal institutions have historically compromised their ability to both refuse sex and insist on condoms. Museveni explicitly argued that to fight AIDS, Ugandans must empower women to take control of the

decisions regarding their sexual lives, and women must be allowed to participate in all levels of governance. These efforts were assisted by the strength and number of women's groups, which played a key role in mobilizing and publicizing women's difficulty in controlling the circumstances under which they had sex. Public and private school systems designed and implemented sexuality education that included gender equity messages (Green et al., 2006; Murphy, Greene, Mihailovic, & Olupot-Olupot, 2006).

Importantly, Museveni not only listened to but valued scientific and medical knowledge. He put great stock in expert knowledge, and warned people against associating AIDS with witchcraft, which he said would deter them from taking protective measures and changing sexual behavior. He also argued Ugandans should avoid unprofessional medical treatment, which would be ineffective against the disease (Putzel, 2004). This stands in stark contrast to the early action of many other African leaders, particularly in the case of South Africa.

The disease carried significant stigmatization not only for those infected but also their families; special care was taken to provide counselling services for all those affected by the disease. Pre-testing counselling was also encouraged and many people publicly testified to their HIV status. Great efforts were made to change public attitudes towards those who test positive for HIV (Bakahumura, 2012; Flint, 2011). Prominent figures came forward with their HIV status. A prominent Major in the Ugandan army

talked about his infection and using condoms to prevent infecting his wife. A prominent Protestant Bishop also disclosed his HIV infection after his first wife died (Green et al., 2006).

The government, in collaboration with development partners, has been able to secure access to ARVs, which are distributed free of cost or are heavily subsidized (Bakahumura, 2012; Flint, 2011). President Museveni and other key officials saw NGOs as crucial to their general reconstruction efforts and created an environment for them to grow and proliferate. The AIDS Support Organization (TASO) was founded by people living with AIDS and was a pioneer in counselling, testing, and the use of antiretroviral therapies in sub-Saharan Africa (Putzel, 2004). It has been argued that the government's role in pushing openness and awareness about the disease was crucial in reining the epidemic in, as was the practice of allowing the proliferation of a number of actors. Despite the replication of the Ugandan ABC "model," Ugandan policy created a political environment that encouraged many actors with myriad messages (Stoneburner & Low-Beer, 2004).

Uganda has been celebrated as a success. Official prevalence figures in 1989 had reached 18 percent in rural areas and up to 30 percent in some urban areas. Within ten years, the nationwide average plummeted to between 6 and 7 percent and has remained in that area. This is significantly lower than the countries of Southern Africa. Concurrent partner reduction among both men and women was a key factor in the reduction of HIV

infections; surveys found that the proportion of men with one or more casual partners in the previous year fell from 35% to 15% from 1989 to 1995. The proportion of men reporting three or more non-regular partners fell from 15% to 3%. (Cohen, 2004; Shelton et al., 2004). This is more significant than it might initially seem, as the latter individuals commonly connect a number of sexual networks, thus increasing the likelihood of dissassortative mixing. For example, Singh *et al* (2004) report that between the 1988-2001 period, there was a delay in sexual debut of young women by nine months in girls 15 to 17, that the incidence of Ugandans with multiple sexual partners declined, and the use of condoms increased significantly. While marital use of condoms increased only slightly (from 15.4 to 29 percent), among unmarried men aged 15-24, condom use increased from 39 to 57 percent between 1995 and 2000 (Murphy et al., 2006). The effectiveness of condom use for prevention of HIV/AIDS was likely an important factor in Uganda's early successes in curbing the epidemic (Kirungi et al., 2006).

Arguably, Ugandan government policies were crucial to driving behavioral changes in Ugandans that has led to a decline in prevalence. The Ugandan government also worked tirelessly to increase awareness of HIV/AIDS at all levels of society, and likely succeeding in reducing the stigmatization and ignorance regarding the disease.

However, Uganda has not been an unmitigated success story. Despite being a darling of donors, particularly PEPFAR, Uganda lost aid from the Global Fund to Fight AIDS, Tuberculosis, and Malaria after PricewaterhouseCoopers concluded that the

whereabouts of \$54 million disbursed by the Global Fund were unknown. Some of it ended up in private bank accounts of government officials. Some was spent on bogus trips and even campaign funds for the reelection of Museveni, who was campaigning at that time for the lifting of presidential term limits so he could stand for reelection (Epstein, 2007).

5.1.2 The Dark Side of Ugandan Success

Why was Museveni able to succeed where so many other leaders have failed? Some credit is due simply to President Museveni's own charisma and personal capabilities (Putzel, 2004). As discussed above, credit is also due Museveni's policy of creating space for NGOs and international donors to operate. However, the above explanation of Ugandan success in containing the AIDS epidemic has been challenged by those frustrated with failed attempts to replicate Ugandan results elsewhere in Africa.

There is less rosy explanation for the success of the Ugandan government in addressing the HIV/AIDS epidemic, involved the somewhat unique nature of political institutions. The early approach to the epidemic fundamentally involved fear and intimidation. The initial theme of many messages was "Beware of AIDS: AIDS kills" (Kaleeba, Kadowe, Kalinaki, & Williams, 2000). Another important component of Museveni's response to HIV was the use of local councils, remnants of the Resistance Councils from the civil war. These Resistance Councils initially operated parallel to the

civil service but were subsequently absorbed into it. They remain the bedrock of Museveni's support. These bodies derived their authority directly from the President and were supported by the army. They allowed a decentralized system of representation built from the grassroots level, essential in a new country with weak state capacity. However, while they supposedly served as advocates for people in their district and assisted in awareness and education campaigns, they also became active in promoting and even enforcing behavioral change, sometimes violently.

The local councils reasserted patriarchal interests, monitored the activity of people at dances, the movement of certain women, and mediated disputes involving bridewealth or the sexual activities of women. They forcibly stopped young women from moving from village to village and closed down discos and bars. They also became involved in hearing cases when a woman was accused of *inyinya*, or witchcraft associated with poisoning, and on a number of occasions had the individual executed. Once news about HIV/AIDS started to spread, such activities essentially received tacit approval from the administration. The term *inyinya* evolved to mean those women who might be infected with HIV, and the Resistance Councils became the primary source of such accusations (Allen & Heald, 2004). This grassroots approach to social control allowed Uganda to succeed in behavioral change where many other states have failed, but only at the cost of clear and substantive human rights violations.

The centralized character of the NRM regime was critical to ensuring the successful implementation of the AIDS Control Program. Museveni left little room for open political dissent once the NRM adopted any policy. The leaders of the central state acted first to rally the nation behind the fight against HIV/AIDS in order to preserve their own power. The centralist authority of the NRM, and the military organization upon which it was based, made dissemination of the messages about HIV rapid and thorough. It was Museveni's military organization that in 1988 implemented the first national sero-survey to take place in Africa.

The army is Museveni's power base, and as commander of the Ugandan People's Defence Force - the successor to the NRA as the national army - Museveni personally oversees the lists of officers who receive ART. This is the ultimate form of patronage (De Waal, 2006). Museveni's approach has long reflected his experience in the NRA: a single power center, which eventually would become the Presidency. This approach is reflected in his approach to virtually all other institutions within the government.

Ugandan AIDS policy and apparent success have also become critical to Museveni's strategy for remaining in power. The political cachet of the apparent success of Uganda's AIDS policies has been an essential boon to the Museveni regime. Museveni has been particularly adept at crafting his message to particular audiences. To international donors and the urban population, he promotes a broad approach to HIV/AIDS including condoms, as well as minimal censorship and the proliferation of

NGOs. To rural and more conservative international constituencies, he promotes behavioral change and abstinence, often violently enforced by the local Resistance Council structure. Janet Museveni, the President's wife, has long been popular in conservative circles in Washington DC, due partially to her opposition to condoms and prominence as a born-again Christian (De Waal, 2006).

Museveni's politicization of HIV/AIDS has enabled him to cement his position both as President and as a world leader in the fight against the pandemic. Museveni has used his HIV/AIDS achievements to paper over cracks in his administration; his post-2000 emphasis on Ugandan HIV/AIDS policies coincided with increased pressure on him to counter allegations of his government's economic mismanagement, corruption, and repression of opposition politicians. During the months leading up to Museveni's reelection in 2001, there were numerous episodes of violence, kidnapping, and torture. The vast majority of these offenses were carried out by Museveni supporters, including the Presidential Protection Unit against the most prominent challenger's (Kizza Besigye) supporters (Epstein, 2001). The focus on AIDS has arguably reduced attention paid to a political situation that left over 1.6 million people living in IDP camps (Murphy et al., 2006). Museveni's rise as a global AIDS authority also helped redirect attention from his controversial 1997 decision to send the Ugandan army into the DRC to help remove Joseph Mobutu from power, a decision that resulted in regional instability, the deaths of thousands of Congolese, and international condemnation of the Ugandan regime.

Particularly post-2000, Museveni's faith-based approach won him both praise and criticism in equal measure. His increased emphasis on the merits of abstinence and fidelity over condom use caused considerable concern amongst those pressing for an increase in condom usage, particularly for teenagers. Critics dismissed his perspective as an attempt to curry favor with the Bush administration in the interest of securing funding and personal recognition (Flint, 2011). It certainly is the case that recent political and religious influences, including PEPFAR, have led the country to tout its ABC campaign to international audiences (Murphy et al., 2006).

Shoring up support via his policies on AIDS has been crucial to the longevity of the Museveni regime. Museveni took power in Uganda and established legitimacy by bringing peace, stability, and relative prosperity. However, during his second decade in power he has involved Uganda in meddlesome foreign wars, and his administration is beset by extreme corruption. Museveni has pursued an increasingly despotic style of government, including keeping a single-party system, and changing the constitution to allow him to continue in office indefinitely. While Western governments would normally be reluctant to cooperate with such a regime today, his record in dealing with AIDS has become his greatest asset (De Waal, 2006). The international community needs Uganda's success, Museveni is aware of this, and he knows how to use this to stave off criticism of his regime.

5.2 South Africa

In 2005, a demonstration organized by the Treatment Action Campaign (TAC) protesting for access to drugs to treat HIV in Queenstown, South Africa occupied the hospital in Queenstown. The demonstration ended when broken up by riot police. Demonstrators, mostly HIV-positive women, were beaten and ten were shot. This was characterized as a life-and-death confrontation between desperate AIDS patients and an uncaring government, possibly the harbinger of widespread riots and even revolution (De Waal, 2006). What makes this demonstration notable is that it is one of the few such instances directly tied to HIV/AIDS, particularly government responses to it. In South Africa, a country with an overwhelming epidemic, how has the government managed to stave off escalating violence?

South Africa saw a fairly radical political shift to democracy in 1994, when the African National Congress under Nelson Mandela assumed power at the end of the apartheid regime. Like Uganda, it was around the time period of the transition to democracy that the country experienced an explosion of the HIV epidemic. Again, like Uganda, South Africa also established a national AIDS control initiative within the first year of the new democratic regime (J. Parkhurst & Lush, 2004). South Africa is the richest country in sub-Saharan Africa and the only true industrial economy. This significant domestic capacity means that South Africa has not been as dependent on

INGOs for service provision or donors for financing HIV/AIDS programs (J. Parkhurst & Lush, 2004).

However, despite these significant advantages, at a time of radical political transformation of the country, some argue that in many ways the window of opportunity for preventing the epidemic's rise was missed (Campbell & Williams, 1999). The new democracy relied on politics of consensus and inclusion, and issues seen to threaten the delicate balance of power, like the HIV/AIDS epidemic, were sidelined (Spence, 1999). While South Africa was left with a relatively strong bureaucracy in the wake of the fall of the Apartheid regime, the entrenched bureaucracy hindered the implementation of the HIV/AIDS plan as envisaged by the new government. A quasi-federal structure left provincial institutions to implement the plan as they saw fit. The provincial institutions however were full of civil servants and officials leftover from the Apartheid regime. These individuals displayed great intransigence in cooperating with the new government (H. Schneider & Stein, 2001).

HIV prevalence in South Africa only exceeded one percent of the population in 1993. Five years later, it had reached ten percent; by 2009, an estimated 17.8 percent of South Africans were HIV positive. This translates to 5.6 million people living with HIV/AIDS at the end of 2009. Life expectancy has fallen back to the level observed in the early 1960s (52 years), and is currently 20 years lower than in Brazil, despite the same level of GDP per capita in both countries. Access to health care is very limited outside

the top three income deciles, and poorer households are generally unable to self-insure against health shocks, such as HIV/AIDS-induced morbidity and mortality (Lule & Haacker, 2011).

The macroeconomic impact of HIV/AIDS in South Africa has thus far been moderate. Best estimates are that HIV/AIDS will continue to reduce GDP growth by 0.4 percent annually through 2020 (Ellis, Smit, & Laubscher, 2006). However other predictions show the AIDS epidemic could shrink the economy to half its size in about four generations in the absence of significant interventions (Bell et al., 2006). HIV/AIDS interventions are equal to GDP per capita, and government revenues have dropped by about three percent while expenditures have increased over five percent of GDP. The fiscal balance had deteriorated to -7 percent of GDP by the early 2000s. HIV/AIDS has driven up fiscal costs not only due to the direct costs of the illness itself, but due in part to South Africa's fairly extensive public social security system, which has been stressed by the increased number of orphans and disabled who fall under this system. The one tragic silver lining is that while HIV/AIDS is driving up such costs now, old-age pensions will decline in the future due to the increased mortality due to the disease (Lule & Haacker, 2011). However, South Africa GDP has increased significantly since the early 2000s, from \$118.5 billion in 2002 to \$384.3 billion in 2012.

The low levels of African popular political concern over AIDS are reflected in South Africa, where Thabo Mbeki's stand on the epidemic failed to hurt the ANC in

elections for years. South Africans overwhelmingly express a desire to prioritize pressing social and economic issues and do not want to see development undermined by pressing for greater government involvement in addressing the HIV/AIDS epidemic (De Waal, 2006). Organizations run by people living with AIDS are likely to be the most active, yet they were undermined by significant losses in their leadership and membership due to the epidemic itself (Manning, 2003).

In the case of South Africa, democratization permitted participation and human rights to alleviate citizen's aspirations even in the face of an abysmal government response to the epidemic. However, over the long-term, the wealth of South Africa means that universal access is an attainable goal, even if it has yet to be reached (De Waal, 2006). The TAC has used the courts to challenge, successfully, the South African government's policy on ARVs. The TAC has no agenda of overthrowing the government; many of its members belong to the ANC. It wants to change government policy, not the government (De Waal, 2006). Despite being severely impacted by the epidemic, the South African government delayed addressing the epidemic, in part due to President Thabo Mbeki's public questioning of the link between HIV and AIDS, with devastating results (Brower & Chalk, 2003). However, despite a few isolated protests and riots, the government has largely been able to focus attention away from the epidemic due to the ability of AIDS activists to work through the current system and because popular opinion prioritizes social and economic development.

However, as discussed above, at the local government level, there is some evidence for the impact of the HIV/AIDS epidemic on state capacity. However, this is a far cry from undermining a state's security (de Waal, 2010b).

Africa's AIDS activists have not needed to stage revolutions at home. Their interests are better represented than ever before, their rights better protected. As described by Keck and Sikkink (1998; 1999), blocked from direct routes to political access, many African activists have used international networks with groups and governments in the West to pressure African regimes. Activists can thus manage a bad regime by circumventing and reducing its power, without having to resort to outright confrontation. AIDS activism has certainly helped secure liberal governance and has obtained vast funds for its agenda. For many activists their struggle is a race with time. Many of those reliant on HIV drugs fear how the disease could overwhelm their fragile governments and are reluctant to destabilize them further. The downside to this approach is that skilled African politicians, such as Yoweri Museveni, have been adept at appeasing a range of stakeholders to maintain their grip on power (De Waal, 2006). However, in the case of South Africa, the government's position on ART and the relationship between HIV/AIDS was changed substantially due to external pressure due to transnational activist networks.

5.3 Discussion and Conclusion

The initial response of many African countries to the HIV/AIDS epidemic was denial, which resulted in weak or ineffective political responses to the disease (Poku & Mdee, 2011). African governments were experiencing the rocky period of structural adjustment programs and many had collapsed or operated under the severe strains of war and violence. In the United States and Europe, where the disease was first identified, the epidemic was associated with homosexuality and intravenous drug use and was thus marked by stigma. Suggestions that the origin of the disease might be located in Africa, as well as warnings regarding the seriousness of the epidemic, were met with hostility. Many African leaders felt this was yet another assault on Africa, threatening to undermine nascent efforts at economic recovery. They also worried that the rush of scientists and journalists to investigate the virus in Africa would reinforce prejudices and discrimination with deep roots in the colonial period (Putzel, 2004).

The cases of Uganda and South Africa illustrate how political institutions are integral to ameliorating the danger posed by the HIV/AIDS pandemic. Effective HIV/AIDS prevention is often said to require, in addition to presidential/prime ministerial leadership, decentralized and democratic government and wide participation of governmental agencies on an equal footing. However, despite the use of Ugandan as a successful model, it differs significantly from this ideal (Putzel, 2004).

It is clear that the centralized and somewhat autocratic character of the NRM regime was crucial not only to mobilizing state organizations and foreign aid resources but also to ensuring significant involvement from non-state actors. In Uganda, the absence of effective political competition in the late 1980s allowed the President a relatively free hand to spearhead a nationwide campaign on HIV/AIDS without needing to be overly deferential to political opponents of the strategy. Programs such as compulsory testing for new recruits to the armed forces received some criticism, but nevertheless have been important in ensuring against further proliferation of the virus in this high-risk group. It was the characterization of the AIDS epidemic as a fundamental threat to the security of the Ugandan state, particularly the danger it posed to Museveni's power base, in combination with the autocratic nature of the regime and repressive local councils that allowed the Ugandan government to control the HIV/AIDS epidemic and avoid catastrophe. While many policy makers, advocates, and NGOs have praised the success of the Uganda ABC 'model,' most of the impact of Ugandan government policies was due to solely to behavioral change that was sometimes brutally enforced by the local council's affiliated with Museveni's regime.¹ Thus, while it is easy to see all things 'democratic' as unquestionably good for governance, the experience of

¹ For further assessment of the impact of various facets of Ugandan AIDS interventions, see Burkhalter (2004), Flint (2011), and Parkhurst (2002)

fighting the HIV/AIDS epidemic in Uganda suggests that a more nuanced understanding of the role of democratic organizations and institutions is necessary.

As illustrated by the case of South Africa, Africans consistently rank HIV/AIDS low among their political priorities, preferring government action on unemployment, poverty, water, and crime. While policy advocates have pointed to democratic governance as a key to stimulating political commitment to AIDS, free and fair elections are no panacea (Bor, 2007; De Waal, 2006). While it is a concern among African publics, AIDS rarely ranks at or near the top. If African voters do not prioritize AIDS, it follows that African politicians will fail to do so as well. This is in part due to the fact that the devastation AIDS causes is dispersed rather than concentrated, meaning that there is no coherent interest group to lobby for change or to call for political protest or violence. Even when such organizations do pull together, the hold USAID, the World Bank, and other international organizations just as responsible as their domestic government in many cases (De Waal, 2006).

These cases reveal insights that are not unique to these countries. Research has found that press freedoms are associated with higher levels of political commitment. Elected officials are no more committed to HIV/AIDS leadership than autocrats, and tend to be less responsive to HIV/AIDS where income inequality is high. Competitive elections do not appear to motivate political commitment to addressing the epidemic. (Bor, 2007).

South Africa and Uganda both illustrate how surplus labor has allowed African states affected by the HIV epidemic to grow rapidly in the face of high morbidity, and in the early stages, mortality due to AIDS. High unemployment rates in both countries meant there was room for both countries to absorb losses due to the disease.

Another crucial factor in mitigating the impact of HIV/AIDS is the practice of mandatory testing in African armies (including those of both Uganda and South Africa). Though considered unethical according to international standards, this policy has been crucial to maintaining the operational capacity of these institutions, which are crucial to domestic and international security (De Waal, 2006). Moreover, by securitizing the disease, ministries such as defense, with greater political clout and resources, have often taken on some of the burden of combating the epidemic. While there are dangers associated with this shift in responsibility, governments have thus far failed to act on the HIV/AIDS epidemic until they perceived real threats to their power (de Waal, 2003). Militaries have proven relatively adept at addressing HIV/AIDS. The structured, highly disciplined nature of militaries has helped them respond with often rigorous AIDS awareness programs. Recruits have also been screened to prevent HIV-positive individuals from joining the ranks. Finally, the provision of relatively affordable ART regimens has have a profound impact on insulating states from the deaths of irreplaceable professionals and elites.

In retrospect, this outcome should not be surprising. African states have long faced challenges including poverty, chronic instability, civil violence, and ethnic conflict. Nevertheless, the very factors that make African states surprisingly resilient in the face of nearly permanent political and economic crises means these states have evolved designed to withstand the dreadful human attrition caused by AIDS.

Despite this, there is reason to believe that danger still exists. The cost of treatment relative to GDP per capita is higher in Uganda than middle income countries, even those with higher rates of HIV/AIDS prevalence (e.g. South Africa). The cost of the national HIV/AIDS program will continue to exceed three percent of GDP for the foreseeable future. Despite hundreds of thousands of new infections, population growth in Uganda is very high, and has contributed to the declining HIV prevalence even though the absolute number of people living with HIV/AIDS has not declined appreciably since the height of the epidemic. Prevalence rates are currently around 6.5 percent for those aged 15-49 (Lule & Haacker, 2011). Uganda, like many other African countries, relies heavily on external support to finance its HIV/AIDS programs, which currently contribute eighty-five percent of the funding for these programs. Even if external financing remains at eighty-five percent, HIV/AIDS-related financing will have to more than double by 2015. If aid allocations are constrained to not grow faster than GDP of the main donor countries, domestic financing would need to increase to 12.5 percent of government revenues through 2025. The cost of HIV/AIDS related

interventions currently cost twelve times GDP per capita (Lule & Haacker, 2011). Such challenges are by no means unique to Uganda.

These cases are both somewhat unique in the historical context, yet also instructive. Countries that have succeeded in slowing or even reversing the progress of the epidemic – Uganda, Senegal, Thailand, and others – not only provided extensive education, prevention, and treatment programs; above all they were successful in mobilizing national political leaders to stress that AIDS presents a challenge going well beyond its health dimensions (International Crisis Group, 2001). Nevertheless, African governments have proved remarkably effective at managing the HIV/AIDS epidemic in a way that minimizes political threats (De Waal, 2006). The cases discussed in this chapter clearly demonstrate how governance can have an impact on the HIV/AIDS epidemic, preventing the violence and state weakness predicted by many observers in the late 1990s and early 2000s.

6. Refugees, Conflict, and HIV/AIDS: Explaining the paradox

In this chapter, I examine the alternative relationship between conflict and HIV/AIDS. It has long been thought that the spread of HIV has been tightly linked to conflicts in Sub-Saharan Africa. The chapter proceeds in two parts. First, I review the literature linking conflict and public health generally, followed by an examination of how conflict may impact HIV/AIDS prevalence with a focus on refugees as an essential intervening mechanism. I then present a theory to address the question, under what circumstances do conflict and refugees give rise to higher HIV/AIDS prevalence?

6.1 Literature Review

Despite the importance of global public health, scant attention has been paid to its study in the political science literature. Yet politics have played an important role in the HIV/AIDS epidemic. Social inequalities are powerful predictors of HIV infection and mortality and are responsible for increased exposure to risky sexual experiences, a higher frequency of STDs, absent or delayed treatment and diagnosis, and other risk factors. Population mobility is a well-established determinant of HIV, and epidemics generally, and is important in Africa due to seasonal labor migration, movement along trade routes, and refugees fleeing war (Fassin & Schneider, 2003).

6.1.1. Conflict and Health

While a great deal of attention has been devoted to studying the economic costs of war, recent research in public health, medicine, and the social sciences has focused on the human costs of conflict. Though there remains a great deal of room for research, it has been established that conflict negatively impacts public health. This finding is robust across a wide spectrum of indicators. Conflict destroys families and a variety of other social institutions, undermines social and economic development, and contributes to the reduction of resources available to combat disease. Conflicts usually generate refugee flows, and migrants are particularly vulnerable to infectious disease. Fleeing violence by crossing international borders denies refugees access to healthcare in their country of origin, and refugees are often also denied treatment in their host nation (Carballo & Solby, 2001).

Severe military conflicts in sub-Saharan Africa have been found to reduce life expectancy by more than two years, and raised infant mortality by 12 per 1,000 (Davis & Kuritsky, 2002). Using the World Health Organization (WHO) Health-Adjusted Life Expectancy (HALE)¹ measure as the dependent variable, Iqbal (2006) finds that after controlling for regime type, per capita GDP, trade openness, population, and education, conflicts have had significant deleterious effects on health. The impact of conflict on

¹ The HALE measure is created by subtracting the number of years an individual is expected to spend with a disability as a burden of disease from the total life expectancy of the individual at birth.

health is quite substantial and continues well after fighting ceases. It also depends on the level of income and relative democratization of the state (Iqbal, 2006).

Ghobarah, Huth, and Russett (2003) argue that the additional burden of death and disability in 1999, due to indirect and lingering effects of civil wars between 1991 and 1997, is equal to the direct casualties incurred during *all* the civil wars of that time. These post-conflict victims are disproportionately women and children. Differentiating by disease category - including all manner of infectious disease as well as other health conditions and diseases exacerbated by conflict such as cervical cancer (due to HPV infections) – as well as by suicide, liver cancer, etc., the authors find support for most of their hypotheses. They argue that deleterious health outcomes result from: increased occurrence and severity of conflict; geographically contiguous conflict; lower health expenditures; less education; higher rates of urbanization; income inequality; tropical countries; more autocratic regimes; and more ethnic and linguistic fractionalization. Democracy in this study was found to function through greater health expenditures prior to and during a war.²

Hoeffler and Reynal-Querol (2003) also find that the human costs of conflict, largely due to reduced health outcomes, continue long after war ends. They argue that this is due primarily to the destruction of public health infrastructure and population

² Ghobarah, Huth and Russett utilize data from the Global Burden of Disease Project, specifically Disability-Adjusted Life Years (DALYs). The DALY is a time-based measure that combines years of life lost due to premature mortality and years of life lost due to time lived in a state of less than full health. This measure can be disaggregated by age categories and specific diseases/disabilities.

displacement. In fact, they find that the number of post-war casualties is often as high as the casualties that occur during a time of conflict. Additional corroboration has been found for the argument that civilians are more likely to die during war than in peacetime from health-related problems. This is particularly true in those states where the infrastructure and health of the population were fragile before the onset of violence. Severe food shortages and the interruption of immunization programs in particular raise the risk of civilian death during conflict (Guha-Sapir, van Panhuis, Degomme, & Teran, 2005).

Recent trends in conflict may have exacerbated the impact of conflict on health. Most modern wars have largely been civil or intrastate wars and are often ethnic in nature. Such conflicts may lead to the destruction of a state's infrastructure since most fighting occurs on the territory of a single state. Civil conflict is also likely to result in population displacement, exposing additional communities to health threats. Conflict may lead directly to deaths and injuries but also may have indirect effects on health through the decreased efficiency of the health care system, the prevalence of disabilities, and the spread of disease. Iqbal (2010) finds that conflict produces reduced male and female life expectancy, fertility rates, and increased infant mortality rates. Violent conflict also has a direct and negative impact on all aspects of health infrastructure, including transportation, power, hospitals, and clinical facilities. This is associated with a decline in health outputs. A large influx of refugees also strains social resources,

reducing the ability of a host state to address the public health needs of its own population.

Health services and workers may become strategic targets of political significance during times of war. Medical personnel in Bosnia, Iraq, the Philippines, Croatia, the Palestinian territories, and Indian Kashmir have all been subject to death threats, mass executions, murder, detention, and torture by military forces. In Mozambique, RENAMO guerillas and government forces destroyed and looted over half of all the primary healthcare facilities in the country, and landmines were even placed in the vicinity of hospitals to deny their use by enemy combatants. In Nicaragua and Peru, health clinics in war zones were destroyed to prevent other factions from receiving medical supplies or services (Pedersen, 2002; Summerfield, 1995). In Côte d'Ivoire during the civil war of 2002, the number of health staff in the northern part of the country was reduced by three quarters; reductions of 88% were noted in the central and western regions of the country. Between 91% and 98% of medical doctors left opposition-held territory and fled to other countries. Seventy-two to 80% percent of health facilities were abandoned due to conflict in the central and northern portions of the country (Betsi et al., 2006).

In sum, there is a growing body of evidence that clearly establishes the deleterious effects of violent conflict on public health, particularly in the most vulnerable states and populations. I now turn to what is known about the impact of conflict on HIV.

6.1.2. Conflict and HIV/AIDS

One of the diseases that has received the most attention in relation to conflict is HIV/AIDS. Elbe (2002) argues that conflict constitutes an important vector of HIV/AIDS and that HIV and conflict have long been intertwined. The first cases of AIDS appeared in Uganda and Tanzania shortly after the war in Uganda in 1978-79 (Hooper, 2000; Serwadda et al., 1985). The AIDS epidemic began in earnest in the Democratic Republic of the Congo around the same time (Piot et al., 1984), though HIV infection was present in the DRC before then (Nahmias et al., 1986; Nzilambi et al., 1988; Sonnet et al., 1987).

In Sudan, conflict in the mid-nineties generated concerns that HIV was spreading to Northern Sudan because of the movement of military personnel and refugees between North and South Sudan (McCarthy, Khalid, & Tigani, 1995). Due to nearly three decades of civil violence and conflict, the intermixing of HIV subtypes previously separated in Africa may have occurred there; such a process has the potential to generate novel strains via recombination (Hierholzer et al., 2002). War appears to have increased HIV/AIDS prevalence in the eastern DRC, primarily due to extensive sexual violence by paramilitaries and foreign militaries (P. B. Spiegel et al., 2004).

Broadly speaking, anything that increases the likelihood that uninfected populations will come into contact with infected ones, or that HIV-transmitting events

with occur, will result in greater HIV/AIDS prevalence (Iqbal & Zorn, 2010). A number of factors influence the national prevalence rate of HIV/AIDS, including social, political, and economic variables. Any increase in drug use, number of sexual partners, and decline of health status that ultimately result from such factors will increase the risk of individuals acquiring HIV. Poverty, political instability, and war all limit personal agency by diminishing individuals' capacity to choose whether to engage in risky behaviors such as unsafe sex and interaction with multiple partners (Gorbach et al., 2002; Patel et al., 2014).

Violent conflict inevitably results in population mixing as well as other increased risk factors for HIV transmission through three categories of mechanisms – resources, interactions, and behavior. Resources include health expenditures, health care infrastructure, and the overall economic wealth of states. Interactions involve the movement of internally-displaced persons and international refugees, as well as the movement of troops. Finally, behavior includes the changes in behaviors associated with the stress of conflict and disruption of social networks that impact the likelihood that one will contract HIV/AIDS (Davenport & Loyle, 2009).

Resources

Violence, instability, and war impact economic growth and the resources available to treat HIV/AIDS. As discussed in Chapter 2, the HIV epidemic has resulted in declining GDP in many African countries due to the increased morbidity and

premature mortality associated with the progression of the disease. This will reduce the overall wealth of a state and thus the financial resources available to fight the disease (United States Institute of Peace, 2001). Recent work suggests that public health spending inevitably suffers in the face of guns vs. butter trade-offs resulting from war (Ghobarah, Huth, & Russett, 2004; Iqbal, 2010). Recent estimates suggest that the HIV epidemic has reduced average growth rates across Africa by 2-4% annually during the first five years of the twenty-first century (Dixon, McDonald, & Roberts, 2002).

Higher levels of wealth signal the presence of opportunities to limit HIV proliferation through better access to health care facilities, the availability of health and AIDS-prevention education, and a reduction in the poverty that compels women to become sex workers or engage in sexual activity in order to meet basic survival needs (Iqbal & Zorn, 2010). Conflicts inevitably reduce the resources available to treat – and reduce the relative priority of treating – disease, lowering the overall ability of the government to educate and treat victims of HIV/AIDS (Elbe, 2002). Access to reproductive health services and means to prevent HIV transmission, such as condoms, is also reduced during conflict (E. J. Mills, Singh, Nelson, & Nachega, 2006) .

Conflict, particularly in sub-Saharan Africa, strains poorly equipped medical facilities. Even in peacetime, in many countries, as little as 40 percent of individuals have access to these facilities. The collapse of public health infrastructure, and absence of health services and control programs, limits access to diagnosis and treatment, including

drugs and supplies. The absence or instability of government during conflict also can lead to scarcity of clean water, absence of shelter, poor sanitation, overcrowding, environmental degradation, and poor nutritional status as a result of food shortages (Connolly et al., 2004). All of these factors increase the risk of acquiring or passing on an infectious disease.

Interactions

Military personnel traditionally engage in high-risk sexual and drug activity compared to their civilian counterparts. This behavior is usually attributed to the pressures of their occupation as well as the stress of extended stays away from home. These extended stints deployed far from family also result in removal from traditional social networks that may have created barriers to risky sexual behavior (Tripodi & Patel, 2002). Soldiers may contribute to the spread of HIV through sexual activity, including patronizing commercial sex workers – who often migrate to military bases or follow large groups of soldiers. Poorly disciplined soldiers also may partake in sexual violence due to boredom, loneliness, stress, and peer pressure (Fourie & Schönteich, 2001; Sagala, 2006). At a minimum, soldiers are drawn from a sexually active age group, are often poorly educated, and are submersed in a culture that encourages risk-taking (Miles, 2003). They typically have greater access to commercial sex workers and more disposable income than the local population (Fourie & Schönteich, 2001). Thus, at least

in the early stages of the epidemic, soldiers typically had HIV infection rates that were significantly higher than the corresponding civilian populations.

Armed conflicts also contribute to the spread of HIV/AIDS to rural areas, which are normally relatively insulated. In Sierra Leone, sexual contacts with foreign soldiers from countries with high HIV seroprevalence preceded rapid increases in rates of STIs and HIV (Salama, Laurence, & Nolan, 1999). The 2002 conflict in Côte d'Ivoire resulted in a dramatic rise in the number of STIs there (Betsi et al., 2006). The relatively high prevalence of HIV in soldiers is not limited to Africa; troops in El Salvador were found to have a relatively high prevalence rate, especially those stationed in urban areas (Wollants et al., 1995). Concerns about the HIV prevalence of Contra troops fighting in Honduras, where HIV was likely introduced by American troops stationed there, raised concerns about an HIV epidemic being brought to Nicaragua by troops stationed at the border (Low, Smith, Gorter, & Arauz, 1990). Any process that promotes interaction between soldiers and civilian populations may thus lead to increased HIV prevalence.

The violence and injuries association with conflicts also increase the likelihood that uninfected individuals will contract HIV through the use of unsafe blood, poor precautions in health care facilities, and untreated sexually transmitted infections, all of which facilitate HIV transmission (Connolly et al., 2004). Poor records systems, breaks in the cold chain, and collection of blood from family members when rapid HIV tests are not available all increase the risk of HIV-positive blood transfusion (Lackritz, 1998).

Surgeries in conflict zones are often performed with diminished aseptic and sterilization procedures and techniques (Santos-Ferreira et al., 1990). The sheer amount of war-related injuries which require transfusion can also overwhelm weakened healthcare infrastructure and increase the risk of HIV infection by transfusion (Khaw, Salama, Burkholder, & Dondero, 2000).

Wide-scale prostitution associated with conflicts and soldiers has been associated with the spread of HIV. This is exacerbated by the disparity between the hard currency power of occupying soldiers and local populations, which increases the likelihood of wide-scale prostitution (Hankins, Friedman, Zafar, & Strathdee, 2002). Destruction of infrastructure and homes, as well as violence against civilian populations can drive thousands into overcrowded refugee camps and across borders. Refugees will often lack access to health care, face uncertain food supplies, inadequate drinking water and sanitation, and epidemic disease (Salama et al., 1999).

As a result, women in emergency situations will often resort to transactions of so-called “survival” or “transactional sex” with men who have food or money in order to avoid starvation for themselves and their families.³ Refugee women will often engage in commercial sex or trade sex for food, shelter, and other necessities necessary for survival (Khaw et al., 2000). In Sierra Leone, war altered sexual networks through

³ While this analysis focuses on sub-Saharan Africa, this is a well-established consequence of conflict, across space and time. See Chelala (1990), and UNAIDS (1997).

massive displacement, psychological trauma, and progressive impoverishment of women. Sexual violence, forced injections among those abducted by rebel forces, and sexual contact with soldiers from countries with high seroprevalence rates were also common (Salama et al., 1999).

Perhaps one of the most disturbing effects of conflict on health is the use of rape and disease as a weapon of war. Military and paramilitary personnel have frequently – and systematically – used rape to terrorize and drive populations from an area (Faber & Stiglmeier, 1994). Young men are often forced to abduct and rape women as an initiation when newly recruited, such as in the Lord's Resistance Army in Uganda (Omara & Kanekar, 2011). Particularly in situations of ethnic conflict, rape is used as both a military strategy and a nationalistic policy. Rape of "enemy" women can serve as an expression of ethnic group hatred, and rape has often been tacitly condoned or even explicitly ordered. Systematic rape occurred during the break-up of Yugoslavia and was responsible for the flight of entire villages in Myanmar (Swiss & Giller, 1993). During Liberia's civil war, perhaps half of women and girls were estimated to have been physically or sexually abused in the first five years of fighting alone (Bauer, 1998). In some communities in Uganda, as many as 70 percent of the women were raped by soldiers during the civil war, some by as many as ten or more soldiers in a single episode of gang rape (Swiss & Giller, 1993). In Rwanda, between 200,000 and 500,000 women were raped during the genocide (Aginam, 2012). Rape as a weapon of war has

also been documented in civil wars in the Democratic Republic of the Congo and Bosnia (UNAIDS, 2004). Systematic rape has also been documented during the conflicts in Sierra Leone, Mozambique, Sudan, and the Central African Republic.

There is evidence that HIV/AIDS in particular has been used deliberately as a biological and psychological weapon of war (Wood, 2006). In Mozambique, Sierra Leone, and Rwanda, there is evidence that armed forces deliberately targeted civilians and utilized widespread rape with the explicit intent to infect victims with HIV (Elbe, 2002). For example, Rwandan Tutsi women were in some cases systematically targeted for deliberate infection with HIV (Donovan, 2002). In Rwanda, the prevalence of HIV in rural areas may have increased from 1% to 11%, largely due to the widespread incidence of rape during the genocide in 1994 (E. J. Mills et al., 2006). Infection rates among female child soldiers and rape victims of the LRA in Uganda were estimated to be double the baseline prevalence rate in that country (Fleshman, 2001; Lovgren, 2001). Arguably, the modern HIV pandemic is due in part to mass rape carried out in the 1970s by Uganda's Idi Amin regime (Garrett, 1994).

Behavior

The disruption of social networks during conflict has several effects. First, as noted above, the breakdown of family units often eliminates networks that serve to protect women from poverty, exploitation, and violence (United States Institute of

Peace, 2001). This may lead to sexual networks with unfavorable power differentials, where women possess a decreased ability to demand the use of condoms and may experience additional high-risk sexual exposures (Khaw et al., 2000). Normal constraints on sexual behavior are often relaxed during conflict and refugee emergencies. Death or loss of contact with spouses may lead people to seek new partners in situations where normal social controls of sexuality by relatives and neighbors are disrupted (Mufune, Fox, & LeBeau, 2000). In addition, children often become sexually active at a younger age in conflict and refugee situations (Khaw et al., 2000). The younger an individual is when he or she becomes sexually active, the greater the risk for eventually acquiring HIV.

Changing patterns of sexual behavior, drug use, and increased HIV risk have been found among young people displaced by war (Hankins et al., 2002). Sexual relationships during war are likely to be short-term, increasing rates of partner change, which in turn increase the reproductive rate of HIV (R. Anderson, Gupta, & Ng, 1990; R. M. Anderson, May, Boily, Garnett, & Rowley, 1991). In addition, frequent partner change increases STI risk, which further increases the risk of HIV transmission between partners (Fleming & Wasserheit, 1999). Finally, in conflict situations, HIV positive women may have no choice but to breastfeed. This can place the child at risk of contracting the disease, but no other options may be available due to the lack of formula and even clean water.

Extensive support has been found in the literature for the impact of behavioral change and its impact on HIV. Social disruptions such as those described above due to war are purported to have driven, in part, the spread of HIV in Mozambique (Zwi & Cabral, 1991). In the next section, I examine the relationship between refugees and HIV, an important factor in driving the relationship between conflict and the disease.

6.1.3. Refugees and HIV/AIDS

Throughout history, refugees and other marginalized population have been blamed for the spread of disease (P. B. Spiegel et al., 2004). Numerous studies have found that violent conflicts result in refugee outflows.⁴ Conflicts in Ivory Coast, Liberia, and the DRC have all involved armed groups, refugees, and economic migrants moving across borders in West and Central Africa (P. B. Spiegel et al., 2004). Conflicts usually generate refugee flows, and migrants are particularly vulnerable to infectious disease.

Migration denies refugees access to healthcare in their country of origin, and they are often also denied treatment in their host nation (Carballo & Solby, 2001). The spread of HIV is generally determined by the rate of partner change, the sexual mixing patterns between different groups, and other biological factors that affect the probability of HIV transmission per sex act, including stress and malnutrition (Buvé, Bishikwabo-

⁴ Numerous studies establish this relationship, and a review of this evidence is beyond the scope of this work. Important works establishing this relationship include Schmeidl (1997); Davenport et al. (2003); and Moore and Shellman (2004).

Nsarhaza, & Mutangadura, 2002). Refugees, by virtue of their displacement, are usually deprived of their livelihoods, reducing their ability to provide food, access healthcare, and other essential elements for maintaining health (Fourie & Schönteich, 2001; P. B. Spiegel et al., 2004). Refugees often lack access to health care and food; for example, in 2003, 39 percent of refugees received only one meal a day (P. B. Spiegel & Qassim, 2003).

Migration in general is associated with social disruption, exclusion from healthcare facilities, commercial sex work, and sexual violence. The prevalence of HIV/AIDS is higher around borders than in internal areas, largely as a result of social disruption and population mixing due to cross-border movement of populations, voluntary or otherwise (Bates et al., 2004). Like most infectious diseases, HIV follows the movement of people (Quinn, 1994). The morbidity and mortality of malaria, tuberculosis, and HIV are increased by migration, whether it is forced by conflict or undertaken voluntarily (Bates et al., 2004). Migration is strongly associated with an increased risk of HIV infection, particularly in the case of rural populations. Migration in the presence of risky behaviors may represent a potent conduit for the spread of infection to new areas (Nunn, Wagner, Kamali, Kengeya-Kayondo, & Mulder, 1995), especially as migrants return to their places of origin.

Changing patterns of sexual behavior, drug use, and increased HIV risk have been found among young people displaced by war (Hankins et al., 2002). The rates of STIs are high in refugee situations, and STIs have conclusively been shown to be an

important cofactor in the transmission of HIV (Fleming & Wasserheit, 1999; Khaw et al., 2000). Access to safer sex tools such as condoms may be scarce during times of war (Omare & Kanekar, 2011). Geographical separation appears to disrupt the social discipline that would prevail in homes and families; the result is more extensive engagement in risky sexual behaviors (UNAIDS, 2004). Women with absent partners are more likely to have additional sexual partners and thus increase their risk of becoming infected (Lurie et al., 2003). Migration, whether voluntary or not, influences the spread of HIV by connecting low and high risk areas and by increasing risky sexual behavior (Coffee, Lurie, & Garnett, 2007).

Migrants, particularly women, are often excluded from the health care system in the urban areas of new countries to which they have relocated. They are often at the bottom of the social ladder and may lack shelter, clean water, and sanitation. States and societies that view migrants as a source of HIV are also more likely to exclude migrants and refugees from social services like healthcare and employment, exacerbating the problems refugees face (Decosas, Kane, Anarfi, Sodji, & Wagner, 1995; P. B. Spiegel et al., 2004). Sexual harassment and exploitation of displaced populations by soldiers and others is common, especially given that refugees often have no recourse to legal or social protections (United States Institute of Peace, 2001). Transactional and commercial sex is frequent due to the shortage of income, food, health supplies, and many more essential goods, and may be demanded by border officials for passage (Bates et al., 2004). The

breakdown of social structures often lifts social prohibitions on the acceptable number of partners and deprives women of structures that may have protected them from sexual violence and abuse (P. B. Spiegel et al., 2004). Refugee camps, especially in the early stages, are often unsafe and exploitation and rape continue to occur. Unfortunately, there are also a number of cases in which peacekeepers and aid workers have exploited female refugees (Jewkes, 2007).

As discussed in the preceding section, rape with the intention of infecting victims with HIV/AIDS has been used as a weapon of war to drive populations out of disputed territory (Bauer, 1998; Donovan, 2002; Faber & Stiglmayer, 1994). This is in addition to the increase in rape and sexual assault generally during periods of conflict. The targeting of refugee populations in particular has been associated with increased prevalence of HIV in some cases (E. J. Mills et al., 2006).

Perhaps most importantly, displacement increases interactions between high and low prevalence populations. This has been shown to be a critical factor in the spread of other STIs, even absent conflict. HIV and other STIs have long been shown to travel along truck routes, trading towns, and border areas where populations are highly mobile. For example, following displacement and return, sero-prevalence among Rwandan refugees who lived in refugee camps in Tanzania or Zaire was 8.5 percent, representing an increase of six or eight fold over the rates of the rural areas from which they originally came. Of the internally displaced women who survived rape during the

Rwandan genocide, 17 percent tested positive for HIV (McGinn, Purdin, Krause, & Jones, 2001). Mozambican refugees in two camps in Swaziland, one near Swaziland's two major cities - and the other isolated in the south in a sparsely populated area - exhibited a difference of 9% in HIV prevalence, likely due to the former camps' proximity to the high prevalence Swazi urban population (McGinn et al., 2001). Mixing between soldiers and civilians populations has also been shown to increase HIV prevalence, as shown by proximity to conflict zones in the Democratic Republic of the Congo (McGinn et al., 2001). The risk of mixing sero-discordant populations is also likely to occur when refugees from rural areas settle near urban areas (Khaw et al., 2000). Rural refugees may lack awareness about HIV, and evidence from Rwanda suggests that HIV prevalence increased dramatically among rural women after the genocide and civil war there (Leroy, Ntawiniga, Nziyumvira, Kagubare, & Salamon, 1995).

While a persuasive case has been made that conflict and the associated refugee flows, poverty, insecurity, and a number of other actors should increase the risk of HIV transmission, it is unclear whether this enhanced vulnerability of populations actually translates into more HIV infections. In Rwanda, HIV prevalence has been well-documented. There, despite many articles which reported that the 1994 genocide caused a substantial increase in HIV infection in rural populations due to massive displacement, rape, and population mixing, researchers have failed to substantiate an increase in HIV. In Sierra Leone and Angola, the isolation of the populations during the conflict appears

to have protected them from the accelerating epidemic in neighboring countries (Ellman, Culbert, & Torres-Feced, 2005). Despite large refugee and internally displaced person populations, large urban slums, and the fact that war has been ongoing in Angola for decades, surveys in Luanda, Angola found remarkably low prevalence rates in both antenatal clinic and family planning clinics compared with urban areas in surrounding countries (P. Spiegel & De Jong, 2003; Strand, Fernandes Dias, Bergstrom, & Andersson, 2007), though the prevalence rate in Luanda was still much higher than the rest of the country. Ivory Coast, which had known stability and relative prosperity for decades, had the highest HIV rate in West Africa (P. B. Spiegel et al., 2004). It has also been suggested that refugees may be flowing from war-torn countries of origin with relatively low high prevalence to peaceful, stable countries with relatively higher rates of the disease (P. B. Spiegel et al., 2004). Even when flowing from countries of high prevalence, such as Burundi, refugees may come from rural areas that are relatively low in HIV prevalence, when compared to their host countries (P. B. Spiegel et al., 2007). If this is true, refugees may present a risk of increased HIV prevalence, but to the country of origin, and only after conflict has ceased.

A few larger studies and quantitative analyses of the relationship between conflict and HIV/AIDS have been conducted to test the veracity of these initial claims. These have generated conflicting results. Iqbal and Zorn (2010) find that the number of refugees, the presence of war, democracy, education, wealth/development and the

presence of a large Muslim population all impact the prevalence of HIV. The number of refugees and the presence of a war were found to be associated with an increased rate of HIV. Education (as measured by the adult literacy rate) and wealth/development (as measured by per capita GDP) were associated with a decreased prevalence rate. In contrast, the number of refugees and the presence of war was associated with an increased prevalence rate. The authors did not find any evidence for the effect of population density or health expenditures.

In contrast, Davenport and Loyle (2009) find that refugee flows that have a high prevalence of HIV/AIDS were associated with a positive and statistically significant effect on HIV/AIDS rates (meaning an increase in the sero-prevalence rate). Refugees with a moderately higher or lower prevalence rate compared to the host country had no statistically significant impact on the prevalence rate of the host country. Their study also found GDP and health expenditures were important factors in predicting HIV/AIDS prevalence. The authors fail to substantiate claims that the severity, length, or other measures of conflict matter. In addition, they found that the number of refugees by itself was not a statistically significant predictor of HIV/AIDS prevalence.

A study of the Ethiopian Defense Forces and the civilian population of the Tigray region of Ethiopia during the Ethio-Eritrean war of 1998-2000 provided no evidence of an increase in HIV prevalence among either civilian or military populations. However, the data may not be generalizable to other conflicts because the conflict was essentially a

conventional war, fought between disciplined armies. There were few guerilla operations, banditry, or violence against civilians. In addition, there was little social disintegration or widespread sexual violence (Berhe et al., 2005; Hankins et al., 2002). Angola, torn by civil war for twenty-seven years, saw relatively low HIV/AIDS prevalence due to low trade and travel, both within the country and across borders. However, the end of the war brought an opening of borders, a quickening of trade, and rising HIV rates in the military and civilian populations.

Finally, a systematic review of HIV prevalence in refugees compared with the surrounding host populations found that nine of twelve camps surveyed had lower prevalence than the surrounding community, with only a single refugee camp showing higher prevalence. The countries considered included the Democratic Republic of Congo, southern Sudan, Rwanda, Uganda, Sierra Leone, Somalia, and Burundi (P. B. Spiegel et al., 2007).

If conflicts are not associated with higher levels of HIV prevalence, which aspects of conflict could be mitigating the spread of HIV? Scholars have suggested that military conflict may constrain population mobility and normal civil interactions, which will hamper the ability of the virus to spread to new populations. HIV has long been known to progress rapidly along major transport routes; war may disrupt trade and movement of people (Strand et al., 2007). War may destroy the infrastructure necessary to travel, and force populations to live in relative isolation in rural areas (P. B. Spiegel et al., 2004).

It is also possible that disruption of vaccination services may curb the spread of HIV by preventing the use of contaminated needles (Strand et al., 2007). Finally, long-term post-emergency refugee camps frequently have better protection, health, education, and social services than local populations and countries of origin (P. B. Spiegel et al., 2004).

6.2 Theory

As we have seen, a number of factors influence how conflict might affect HIV/AIDS. However, it is not conflict itself which causes a change in HIV/AIDS. Rather, the aforementioned literature makes it clear that conflict affects HIV/AIDS through a number of intervening variables. Nevertheless, not all factors are equally important. In particular, refugee flows emerge as one of the most prominent purported influences on HIV/AIDS rates in sub-Saharan Africa and represent an extremely important political phenomenon in their own right. Thus, I propose to test under what circumstances refugee flows impact HIV/AIDS.

6.2.1 Disaggregating Refugee Flows during Conflict

Flows of refugees are not random or homogenous. Previous studies failed to appreciate this and thus failed to disaggregate important features of refugee flows. As a result, previous work has neglected to investigate the different ways features of refugee flows could matter. All things being equal, refugees are more likely to flow to areas

where they share ethnicity with the host population (Ruegger, 2013). Nevertheless, this option is not always available to refugees, whose options may be constrained by geography, fighting, or other factors. Refugees situations in Africa are often protracted, with refugees remaining in the host country for extended periods of time (Jacobsen, 2002).

It has been shown that the structure of sexual networks is a major determinant of the temporal pattern and magnitude of an epidemic in a given community or group. In particular, a high degree of disassortativeness – the mixing of unlike populations, here high and low prevalence – is associated with a larger, more drawn out epidemic. In contrast, a high degree of assortativeness results in a rapid initial spread of HIV but a smaller epidemic overall (R. Anderson et al., 1990). HIV spreads most rapidly in populations with concurrent commercial, casual, and marital sex, situations common to intermingling populations during conflict (Ainsworth & Over, 1999).

Previous studies suggested that in general, the risk of HIV transmission depends on the “extent and pattern of host-refugee interactions” (Khaw et al., 2000; P. B. Spiegel et al., 2004), but they did not explore the different factors that might affect the extent of such interactions. Refugee populations that enter territory with those who share their same ethnicity will, all things being equal, be more likely to integrate into the host society. Co-ethnics often share extended family ties, speak the same language, and follow many of the same cultural practices. These extended networks and shared

characteristics allow co-ethnic populations to better integrate into the host society, compared to those who do not share ethnicity with the host population.

Upon first inspection, one might assume that these shared ties and resulting integration into the host society would be unreservedly beneficial for refugees. This might be true when migrating to developed countries. For example, one could imagine that housing, employment, social support, and health care opportunities would be relatively strong for those immigrating into a country like Germany. However, in much of sub-Saharan Africa, while extended ethnic or kinship networks might allow the refugees to integrate into the host society more easily, they may not find conditions as favorable as one would expect. Despite sharing ethnicity and familial ties with some portion of the host population, refugees may experience great difficulty finding shelter and employment, and may be excluded from access to social services and healthcare. Refugees, among other marginalized populations, have often been blamed for the spread of disease. For example, Lieberman (2009) found that government leaders are less likely to promote policies responding to the HIV/AIDS epidemic in states where marginalized groups were viewed as the source of the disease. Refugees are thus often discriminated against on the basis of their status as refugees and for being accused of bringing HIV/AIDS with them into host countries.

Refugees not living in camps often go undocumented and do not receive direct material support from UNHCR and other organizations (P. B. Spiegel & Qassim, 2003).

As discussed above, a large influx of refugees also leads to significant strain on social resources, reducing the ability of a host state to address the public health needs of its own population (Iqbal, 2010). Xenophobic attitudes often hinder urban refugees from obtaining basic services (P. B. Spiegel & Qassim, 2003), and refugees are often deliberately and systematically excluded from many host countries' HIV/AIDS National Strategic Plans (P. B. Spiegel et al., 2004).

In contrast, refugees who do not share ethnicity with the host population will lack these kinship ties and will immediately face impediments when considering integrating into host society. At the outset, fewer ties mean that refugees will be less able to successfully integrate into the host society. These populations will be more likely to settle in refugee camps. While conditions in the short term can be deplorable, over the long term, INGOs and other actors are often able to establish relatively high quality delivery of healthcare, as well as physical protection, education, and social services (P. B. Spiegel et al., 2004). Refugees and internally displaced persons in a closed camp are easier to access than they would be in the rural communities, which allows for greater opportunity for provision of health care and HIV-awareness education (Ellman et al., 2005). Studies have substantiated greater HIV/AIDS knowledge in camp populations (P. B. Spiegel et al., 2004). In Côte d'Ivoire, the number of NGOs engaging in the prevention and care of those infected with HIV/AIDS doubled when compared to the pre-conflict number (Betsi et al., 2006).

This differentiation of integration into the host society potentially explains the disparate findings regarding the impact of refugees on the prevalence of HIV/AIDS. Early predictions about the effect of refugees on HIV/AIDS prevalence assumed all refugee populations would experience similar circumstances, but refugees do not represent a monolithic mechanism of effect. Counter-intuitively, it is those refugees who possess greater ethnic ties, and thus are more likely to integrate into the host country and society, who are more likely to be associated with increased HIV/AIDS prevalence. Refugees who remain isolated in refugee camps interact less with the host population, and fewer interactions lead to fewer opportunities to spread or contract HIV/AIDS. In addition, refugees in camps may, in many cases, receive superior healthcare when compared to those individuals who integrate into the host society.

Those refugees who share ethnicity with their hosts are better able to move among the members of that host population. More interactions mean greater opportunity to spread HIV/AIDS. In addition, they may face malnutrition, lack of employment, and other factors that make them a particularly vulnerable population, but without access to the health care and aid provided by INGOs in refugee camps. This is exacerbated even further in cases where they belong to marginalized populations such as ethnic minorities, who already face difficulty in accessing health care, leading to delayed treatment, higher mortality, and increased potential for transmitting infectious diseases (Bates et al., 2004). This leads to the first main hypothesis.

Hypothesis 1: Refugees will be associated with an increased rate/risk of HIV/AIDS when they share ethnicity with the host population (or a significant portion of the host population).

6.2.2 Alternate Hypotheses regarding refugees and conflict

Contrary to initial views that linked HIV/AIDS and war, reduced mobility and social interactions due to conflict may work to dampen HIV transmission during conflict and forced migration (P. B. Spiegel et al., 2004). The impetus for this study in fact comes from limited surveys that suggest that at least in some cases, conflict and refugee movements have not led to increased HIV prevalence; in some case conflict may have even insulated states from the HIV epidemic. Mass killings, forced displacement, destruction of transportation infrastructure, and limited population movements may all lower the incidence of infections and reduce social networks in which individuals might be exposed to HIV. If war isolates rural areas from urban population centers, where HIV prevalence is higher, the spread of HIV to rural districts may be hampered (P. B. Spiegel et al., 2007). On the other hand, exposure to violence has long been thought to increase the likelihood of HIV/AIDS transmission (P. B. Spiegel et al., 2004). Two opposing hypotheses result from this.

Hypothesis 2a: The presence of inter- or intrastate war will be associated with an increased rate of HIV/AIDS.

Hypothesis 2b: The presence of inter- or intrastate war will be associated with a lower rate of HIV prevalence due to reduced social interactions, isolation of populations, and war-related deaths.

It has been suggested that the most dangerous period for the propagation of HIV infections might be the end of a conflict (Strand et al., 2007). At this point, internally displaced persons, refugees, and soldiers are all repatriated and returned home to their families. Exposed to conditions favorable to the spread of HIV while abroad, they may return to a home with limited opportunities for employment, a shattered health care system, disrupted family structures, and HIV and co-infections. The recovery and reconstruction phases may not lead to immediate or even medium-term improvement in health and well-being, as post-conflict phases are often still associated with deterioration of law and order, surpluses of arms and unemployment, and continued interruption of social and health services (Becker et al., 2008), so improvement to health and social welfare systems will not yet offset increased interactions. A return to peace will prompt an increase in the movement of people, and increase the number of interactions typical of civil life. This return may thus be the time period in which the likelihood of increased HIV prevalence is the greatest. This is particularly likely to be true if studies that have found the refugees tend to flee to areas of higher HIV prevalence are correct (P. B. Spiegel et al., 2007).

This gives rise to two related hypotheses. While often ignored, HIV may constitute a threat to the home country of refugees, given that externally displaced persons may bring HIV home with them. The subsequent spread of the disease will depend on the mixing of infected and uninfected populations.

Hypothesis 3: The cessation of a conflict will be associated with an increase in HIV/AIDS prevalence.

To flesh out the remainder of the model, we need to consider the remaining factors that influence HIV/AIDS at the national level. The other covariates necessary for the model will be discussed in the next chapter.

7. Ethnicity, Conflict, and HIV/AIDS: A quantitative test

In the previous chapter, I discussed the literature linking conflict and refugees to HIV/AIDS. While early predictions and accounts provided some evidence of a link between conflict and the flow of displaced persons to increased prevalence, recent studies have found that the picture is likely more complex. In this chapter, I will test the conditions under which conflict and refugees impact HIV/AIDS prevalence.

In the epidemiological literature, the original “trio” of factors associated with HIV was the number of sexual partners, condom use, and STIs (Krieger et al., 2004). While these remain accurate predictors, additional factors have been identified that may explain HIV transmission and amplification patterns: the presence of sexual coercion, which may limit the ability of women to control whether precautions are taken; age disparity between partners; the presence of ulcerative STIs; alcohol and drug consumption, which contribute to risky behaviors; mobility, particularly relative to political instability or migrant labor; sexual partnership networks; and characteristics of sex acts, including the number, timing and type (Krieger et al., 2004). Virtually all of these factors are influenced by conflict. The associated violence, lack of access to resources, and stress of forced migration all increase the chance of risky behaviors,

transactional sex, sexual assault and rape, lower age at sexual debut, the likelihood of contracting STIs, and instability in partnerships and family structure.

7.1 Data and Methods

7.1.1 Dependent variable

Data for the cross-national analysis of HIV/AIDS prevalence rates are drawn from the UNAIDS database (World Health Organization Global Health Observatory). These data are available going back to 1990 and estimate the prevalence of HIV/AIDS in each nation-state. Generally, these data are drawn from a variety of data sources, usually health ministries within each country.^{1,2}

7.1.2 Independent Variable: Refugees

The main source of empiric refugee data for refugee hosting and refugee sending countries is the United Nations High Commissioner of Refugees (UNHCR), the UN Refugee Agency. This database provides dyadic data on refugee movements between two countries with almost global coverage beginning in the 1960s. The UN convention Relating to the Status of Refugees defines a refugee as:

¹ In some years the government is not able to provide HIV data, often due to conflict and violence. In these cases, prevalence is generally estimated using sentinel surveillance site data from neighboring countries. Thus, while imperfect, the damage done to the ability to analyze the impact of conflict and refugees on HIV/AIDS is minimized.

² While the analyses presented in the chapter use unadulterated prevalence, regressions using the natural log values of the prevalence rates as dependent variables to account for the potentially skewed nature of HIV rates across countries produce similar results.

“a person who owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.”

UNHCR also provides estimates of asylum seekers, returnees, and internally displaced persons, grouped together as “persons of concern.” The collected data focus on the total number of refugees in the country in that year; limited information about new arrivals is available.³

As described in the previous chapter, the ethnicity of refugee flows is likely to influence the degree to which refugees are able to integrate into host populations and pose a risk for the increase of HIV/AIDS prevalence. Using reports from UNHCR, NGOs, conflict narratives and news articles, I assembled data on the ethnicity of refugee flows. Generally, only the largest ethnic groups were recorded to make the analysis feasible. In addition, an ethnic group composing a tiny fraction of the refugee flows is unlikely to have a substantial impact on the HIV prevalence in the host state. This was

³ Data are not disaggregated except for a breakdown of gender composition (percent male/female) and the number of refugees per settlement.

combined with information on the major ethnic groups within each host state. The final variables used in this analysis are:

Shared ethnicity: A binary variable where 1 indicates that the ethnic group making up the majority, plurality, or substantial minority of the refugee flows in that year shares ethnicity with the host population.

Shared Ethnicity (refugee outflows): A binary variable where 1 indicates that a country of origin has generated refugees flows where the majority, plurality, or minority ethnic group comprising the refugees shares ethnicity with the host nation-state.

7.1.3 Control Variables

Population Density: The natural logarithm of the population per square kilometer as reported by the World Bank in its World Development Indicators (WDI) database. This variable should be associated with positive HIV/AIDS rates due to the nature of how infectious diseases are passed from one individual to another. Considerable epidemiological data links population density to the spread of infectious disease (McInnes, 2011; Quinn, 1996; Zhu et al., 1998).

Wealth/development: The natural logarithm of per capita GDP in US\$ as reported by the World Bank WDI. High levels of wealth and development usually indicate the presence of opportunities to limit HIV proliferation through better access to health care, health education, social services, and a reduction in the poverty that compels women to engage in survival sex (Iqbal & Zorn, 2010). Poverty structures not only the contours of

the pandemic but also the outcome once an individual is sick with complications of HIV infection. Poor families have reduced capacity to deal with the morbidity and mortality of the disease compared to richer ones. This is due to the absence of savings and other assets that can cushion the impact of illness and death. The poor are already on the margins of survival and are unable to deal with the costs of drugs to treat opportunistic infections, the cost of transport to health centers, reduced household productivity through illness and job discrimination, funeral and related costs, and so on (Poku, 2005). This variable should be associated with lower rates of HIV/AIDS.

Health expenditures: The sum of public and private expenditures as a percentage of total GDP, measured in constant U.S. dollars. Drawn from the WDI. A measure of GDP alone may not account for the resources spent on health care. During conflict, spending on health and social welfare programs is likely to be cut in the classic “guns vs. butter” trade-offs that occur during times of conflict (Ghobarah et al., 2004). Greater health expenditures should be associated with a decreased prevalence rate.

Democracy: Democracy has been hypothesized to matter to health outcomes through greater contributions to health expenditures (Ghobarah et al., 2003; Ghobarah et al., 2004) but also due to the role institutions play. For example, shorter time horizons have been found to correspond to the creation of more AIDS policy (which is relatively cheap), whereas longer time horizons correspond to greater funding and actual implementation (Dionne, 2011). Conversely, authoritarian polities may have an easier

time implementing costly policies that require greater centralization and authority that a new democracy may lack (Paxton, 2013). Data are drawn from the 21-point POLITY IV score; higher values indicate greater levels of democracy (Marshall & Gurr, 2013).

Conflict: This variable indicates that an armed conflict was ongoing in the previous year. Data are drawn from the Uppsala Conflict Data Program/International Peace Research Institution (PRIO) data on the presence of armed conflict (Gleditsch, Wallensteen, Eriksson, Sollenberg, & Strand, 2002; Harbom, Melander, & Wallensteen, 2008) causing greater than either 25 or 1,000 battle deaths. Both measures of severity are tested in this analysis. As noted in the previous chapter, the presence of conflict is likely to have a mixed effect on HIV prevalence due to the suppressive effect of conflict on human mobility and interactions, balanced against the increase in factors that increase risk including poverty, forced displacement, rape, and the increase in commercial and survival sex. Overall, I predict that conflict will be associated with an increase in the HIV/AIDS rate.

Conflict Cessation: This is a binary variable indicating whether a conflict ended in the previous year to account for the lag between the end of conflict and the resumption of regular social life and activity. This is consistent with the finding of Ghobarah, Huth and Russett (2003) that an increase in disability-adjusted life years due to AIDS in 1999 is statistically significant and associated with conflicts from 1991-1997. Conflict cessation should be associated with an increased rate of HIV/AIDS prevalence, given the increase

in population mobility, interactions, and the return of refugees from neighboring host countries.

7.1.4 Methods

Before conducting the primary statistical analysis, it is necessary to address potential endogeneity. While the results from Chapter 4 indicate that there is little evidence to support the impact of HIV on the outbreak of conflict, further tests can be conducted to determine the potential direction of causality in the relationship.

Granger causality is one way of addressing causality in observational data, as well as dealing with endogeneity problems due to simultaneity. It can be said that a variable X “granger causes” Y if:

1. The expectation of y given the history of x is different from the unconditional expectation of y;

$$E(y | y_{t-k}) \neq E(y | y_{t-k}, x_{t-k})$$

2. The expectation of x given the history of y is *not* different from the unconditional expectation of x.

$$E(x | x_{t-k}) = E(x | x_{t-k}, y_{t-k})$$

In other words, knowing the history of X should improve our ability to predict Y compared to knowing only the history of Y. In the event that the second condition is not met, Y also Granger causes X and the endogeneity problem of simultaneity must be

addressed. In this case, tests for Granger causality indicate that conflict Granger causes HIV, but HIV does not Granger cause conflict. Further information can be found in the appendix.⁴

The primary analysis conducted in this chapter is a time-series cross-sectional analysis of the countries in sub-Saharan Africa (1990-2012) measuring the impact of refugees flows on HIV/AIDS prevalence. In the models, I control for the presence (or cessation) of civil conflict, development, population density, health expenditures, education, and democracy. In the first model, refugee flows remain aggregated and I examine the impact of conflict in the prior year. In subsequent models, I test the effect of conflict cessation and disaggregating refugee flows as important explanatory variables. The primary models use unlogged HIV prevalence.⁵

Three well-known problems with TSCS analyses (N. Beck, 2001) that are likely to be problematic in this analysis are: nations vary so that error variance varies from nation to nation (panel heteroskedasticity); unobserved features of some countries are related to unobserved features in other countries (contemporaneously correlated errors); and observations are temporally dependent (serially correlated errors). I use panel-corrected standard errors to account of panel heteroskedasticity and contemporaneous correlation

⁴ An exhaustive list of work on Granger causality would be prohibitively long. An initial discussion of Granger causality can be found in Granger (1969) and Granger (1988). A recent application in the field of Political Science is Hood, Kidd and Morris (2008).

⁵ I also conduct the analysis using models using the logged HIV prevalence rate in case the distribution of HIV is skewed. The results are similar.

of the errors. I include a lag of the dependent variable to account for serially correlated errors.⁶

7.2 Results

Models 1 and 2 demonstrate that previous analyses are insufficient, as the presence of conflict and the number of refugees are not useful predictors of HIV/AIDS prevalence. Models 3 and 4 demonstrate the usefulness of examining the ethnic composition of refugee flows and their relation to the host population. Model 5 illustrates that conflict cessation has a positive association with HIV/AIDS prevalence.

In the first model, the primary variables of interest, total refugees and conflict in the previous year, are not statistically significant. This is consistent with studies that have found that many urban areas do not see a significant increase in HIV/AIDS prevalence during conflicts. The variable here represents the presence of intra- or interstate war which caused twenty-five or more battle deaths in the previous year. In addition, the number of refugees alone does not adequately indicate under what circumstances population flows during conflict are likely to lead to an increase in HIV prevalence. In Model 2, the same results hold, though now conflict is measured by only those conflicts with 1,000 battle deaths or more.

⁶ For a thorough review of the problems with TSCS data and how to best approach modeling, refer to the following long line of literature on the subject: Beck and Katz (1995), Beck and Katz (1996), Beck and Katz (1998), Beck (2001), Beck (2007), Wilson and Butler (2007), Beck and Katz (2011).

As predicted, GDP and health expenditures are statistically significant though they have disparate impacts on HIV/AIDS. Increased GDP is associated with a decreased prevalence rate, whereas higher health expenditures are associated with increased prevalence. Democracy and population density failed to reach statistical significance.

Table 6: Baseline model: Number of refugees and presence of conflict

	Model 1	Model 2
GDP per capita	0.116** (0.026)	0.119** (0.026)
Health expenditures	0.091* (0.044)	0.089* (0.044)
Population density	0.003 (0.006)	0.004 (0.006)
Polity	-0.001 (0.002)	-0.001 (0.002)
Refugees	-0.012 (0.007)	-0.017 (0.013)
Conflict (>25)	-0.025 (0.019)	-
Conflict (>1000)	-	-0.004 (0.003)
Constant	-0.367 (0.203)	-0.381 (0.200)

****indicates $p < 0.05$, * $p < 0.10$, PCSE in parentheses**

In model 3, I examine the impact of refugees based on shared ethnicity between host and refugee populations. Here I indicate whether any of the groups that compose a majority, plurality, or large minority of the flow share ethnicity with the host population. In model 4, I test whether the impact of refugees from a source country into a country where they share ethnicity with the host population is associated with an increase in HIV prevalence in the country of origin.

Table 7: Shared Ethnicity and HIV/AIDS Prevalence

	Model 3	Model 4
GDP per capita	-0.136** (0.029)	-0.126** (0.028)
Health expenditures	0.109** (0.019)	0.111** (0.022)
Population density	0.010 (0.007)	0.039* (0.013)
Polity	-0.009 (0.005)	-0.013 (0.009)
Refugees Shared Eth.	0.230** (0.042)	- -
Refugees flows to coethnic host	-	0.097** (0.030)
Conflict (>25)	-0.042 (0.036)	-0.090 (0.035)
Constant	-0.847** (0.235)	-0.112 (0.212)

**i indicates $p < 0.05$, * $p < 0.10$, PCSE in parentheses

In models 3 and 4, the advantage of disaggregating refugee flows becomes evident. In both cases, refugees are now a statistically significant predictor of HIV prevalence and are associated with an increased prevalence rate. The substantive effect is larger for host countries (model 3) than for countries who send refugees to neighboring countries (model 4).

Table 8: Shared ethnicity (refugees) and Conflict Cessation

	Model 5
GDP per capita	-0.0139** (0.030)
Health expenditures	0.0105** (0.019)
Population density	0.012* (0.005)
Polity	-0.009 (0.005)
Refugees Shared Eth.	0.023** (0.041)
Conflict Cessation	0.092* (0.036)
Constant	-0.826* (0.240)

****i**ndicates $p < 0.05$, $*p < 0.10$, PCSE in parentheses

In model 5, I include ethnic kinship and conflict cessation. The results remain the same from the previous analysis with the exception of the importance of conflict. It is now clear that conflict cessation is a key variable in predicting change in HIV/AIDS.

Conflict cessation is associated with an increased rate of HIV prevalence and is statistically significant.

Regarding the control variables in models 3-5, GDP per capita continues to be robustly associated with lower prevalence and higher health expenditures are associated with higher prevalence. Polity remains statistically insignificant. Population density reaches statistical significance only in models 4 and 5, where it is associated with a higher rate of HIV/AIDS prevalence.

7.3 Discussion

The results pertaining to refugee flows provide evidence that the ethnicity of refugees is important for understanding whether conflict and its intervening variables lead to increased HIV prevalence.

Conflict itself was not a significant predictor of HIV. This is likely due to the mixed impact of war on human interactions. While conflict may increase the interactions between low and high prevalence groups, civilians and militaries for example, as well as increase the incidence of rape, sexual violence, commercial sex work, transactional sex, and create stressors that render populations vulnerable to contracting HIV/AIDS, these factors are likely offset by reductions in population mobility and interactions that characterize normal societal relations during peacetime. Instead, it was the end of conflict that appeared to matter in predicting when and if conflict would contribute to HIV/AIDS. This is likely due to repatriation of refugees, the resumption of travel, and

widespread population mobility. The return of displaced persons who fled to cities, which almost always have higher prevalence, to lower prevalence rural homes likely increases the risk of HIV spreading to otherwise isolated portions of a country.

The results for development (GDP per capita) illustrate the continued need for promoting economic and human development to fight the HIV/AIDS epidemic. In every analysis, this variable was statistically significant and associated with a decreased HIV prevalence rate. In contrast, total health expenditures were associated with increased HIV/AIDS prevalence. Though lagged by a year, it is likely the case that health expenditures have risen in response to higher HIV prevalence, while also acting to reduce HIV/AIDS prevalence. It is unlikely to be the case that higher health expenditures cause the spread of HIV.

Population density was statistically insignificant in the first three analyses; this may be because it does not adequately capture features of population distribution which contribute to HIV prevalence. For example, many countries may be relatively low in aggregate population density but have relatively high proportions of their population in dense urban areas. There, the risk of HIV is typically significantly higher than less dense urban areas. However, when statistically significant, population density is associated with higher rates of HIV, consistent with theoretical predictions.

Upon initial consideration, it may seem odd that democracy is not associated with a change in HIV prevalence. However, there are several plausible explanations for

this finding. As mentioned previously, the impact of democracy on health has been found to matter primarily through the amount of resources devoted to addressing health (Ghobarah et al., 2004; Iqbal, 2010). Once we control for health expenditures, the impact of democracy may be minimal. However, it is also the case that in sub-Saharan Africa, stronger, more centralized regimes with autocratic characteristics have been successful in implementing responses to HIV/AIDS due to concerns about threats to state capacity and security. This is demonstrated in Chapter 5 in the case of Uganda. It is possible that some democracies are effective in mobilizing resources to fight the epidemic due to better development and state capacity, but more authoritarian regimes are able to marshal resources due to the need for less consensus and input over the distribution of scarce resources.

In summary, simply stating that conflict or refugees cause higher HIV/AIDS prevalence represents an overly simplistic statement of the causal relationship between these variables. In fact, the evidence provided in this chapter suggests that such a statement is incorrect, due to its failure to appreciate that there are specific circumstances under which conflict and refugee flows will contribute to higher HIV/AIDS prevalence. Though in some cases HIV/AIDS prevalence may be driven largely by the presence of war, the results of this analysis indicate that it is the cessation of conflict and the ability of refugees to integrate into the host population that is key to understanding the conditions under which HIV/AIDS prevalence will increase or

decrease. In the next chapter, I examine cases that illustrate how conflict, conflict cessation, and refugee flows have influenced HIV/AIDS prevalence in Sub-Saharan Africa.

8. HIV/AIDS, Security, and Conflict: Cases

The cases in this chapter all illustrate the importance of shared ethnicity and conflict cessation in influencing whether conflict processes will impact HIV/AIDS prevalence. Guinea illustrates how shared ethnicity across geographic borders allowed refugees with relatively higher prevalence to contribute to an increased prevalence rate in a host country. In the case of the Democratic Republic of the Congo/Zaire, Hutu refugees fleeing Rwanda lacked strong co-ethnic ties and were aggressively kept in camps by the fleeing regime. Because of this, HIV prevalence in the DRC did not increase as a result of large refugee flows. Only with the start of the Congo war and the actions of the RPF and allied Congolese militant groups were the refugees dispersed, resulting in a local increase in the Kivus. In the cases of Angola and Mozambique, refugees integrated into host communities with much higher rates of HIV/AIDS prevalence. In combination with limited population movement during civil wars in these countries, it was only in the aftermath of civil war that the AIDS epidemic accelerated as refugees returned to their home countries.

8.1 Guinea

While it attracted less attention than the refugee crisis stemming from the civil war in Rwanda, the refugee crisis in the Forest Region of Guinea due to war in Liberia and Sierra Leone generated over 500,000 refugees from 1989-1994. The total number of

refugees in the Guinean Forest Region alone was 578,848 in mid-1995. Because the native population of Guinea was only 7.5 million, this gave rise to one of the highest concentrations of refugees in the world at the time. In some areas, refugees significantly outnumbered the local population and increased population densities in some communities and the demand for local resources.

On December 12, 1989, the National Patriotic Front of Liberia, led by Charles Taylor, attacked Butuo in the Nimba county of Liberia from Cote d'Ivoire. Within one year of the start of armed conflict in Liberia in 1989, almost 400,000 Liberians fled to the neighboring Forest Region of Guinea. Refugees from Liberia and Sierra Leone settled primarily in Guinean border villages and medium-sized towns where they shared culture and ethnicity with the local population (Van Damme, De Brouwere, Boelaert, & Van Lerberghe, 1998). They quickly outnumbered the host population in many of the villages in which they settled. Early waves of rural refugees from the Mano tribe fled across the Liberian-Guinean border where they settled along the border in Mano villages inside Guinea. They were often able to stay with relatives. This pattern of refugees from rural areas in Liberia settling in host villages inside Guinea with extended family was typical of much of the refugee movement into Guinea during this time period (Van Damme, 1999).

Even when refugees did not integrate directly into existing villages, they generally occupied sites on the fringes of existing settlements. The Government of

Guinea did not want to create refugee camps, and the pattern of ethnicity facilitated integration into Guinea society. The majority of refugees came from the same ethnic groups as the local villagers (Black & Sessay, 1997; Damme, 1995). Between 1990 and 1993, refugees settled themselves peacefully into Guinean communities. Many participated in the local subsistence economy, exchanging labor for a share of the harvest (Lawrie & Van Damme, 2003). Approximately two-thirds of the refugees settled with the host population.

The Guinean Ministry of Health decided not to create separate refugee health services but offered free access to existing health centers and hospitals to refugees. UNHCR acquiesced to this policy and provided payments to the Guinean health system to cover treatment of refugees. In areas with high concentrations of refugees, distant from any existing health facilities, supplementary health posts were created. These offered free health care to all inhabitants, both native Guineans and refugees (Damme, 1995).

Migration from the Liberian cities to Guinea was largely due to the movement of the Mandingo population, referred to as Conianke or Malenke in Guinea. Largely settled in urban Liberia, many families migrated from Guinea in the 1960s and 1970s and thus still had strong familial connections with their co-ethnic populations in urban Guinea. They did not flee to the countryside in Guinea but rather reintegrated with relatives in Guinean cities (Van Damme, 1999).

Some 100,000 refugees from Sierra Leone escaped into Guinea in 1991 after the NPFL and RUF launched an offensive against ULIMO and penetrated into Sierra Leone. These refugees had lower prevalence rates than the rural Guinean population and were from the Kissi and Mende groups. Many Mende settled in the Kelema isthmus of Guinea, a stretch of land that protrudes into Sierra Leone. The camps there could only be reached on foot via an 18-mile trail. The Kissi settled primarily among coethnics in Gueckedou prefecture (Van Damme, 1999). Much of the rural population in the Forest Region of Guinea belongs to the Kissi ethnic group, which overlaps with Liberia and Sierra Leone, allowing ethnic and social ties to facilitate integration (Van Damme et al., 1998).

As a general rule, refugees from larger towns and urban areas tended to end up in camps or migrating to urban areas inside Guinea. For example, refugees from the Liberian mining town Yekepa did not share ethnicity with most of the other refugees, nor did they share ethnicity with the host population in rural Guinea. This is likely due to the fact that a mining town such as Yekepa attracted workers from all over the country. Without these co-ethnic links, the refugees fleeing Yekepa were forced to stay in a refugee camp that sprang up in Thuo, Guinea. Aside from the Malenke population with strong ethnic ties in Guinea, most Liberian urban dwellers that fled to Guinea belonged to ethnic groups not present in Guinea. They ended up primarily in camps (Van Damme, 1999).

The settlement patterns of refugees in Guinea were driven largely by the ethnic kinship – or lack thereof - between the refugees and the host population (Van Damme, 1999). The lives of those refugees who integrated quickly became intertwined with those of their host community. They shared employment, often working on Guinea farms, and participated fully in the rural subsistence economy. In contrast, refugees in camps were often located hours from Guinean settlements and were economically and socially isolated from the host population. However, the former vastly outnumbered the latter, accounting for over two-thirds of the refugee population in Guinea in the early and mid-1990s, when the HIV prevalence rate began to increase rapidly.

In addition, the aid to Guinea prompted increased economic activity and resulted in drastic improvements to transportation infrastructure. Roads and bridges were repaired, initially to facilitate the transportation of food aid to rural areas (Van Damme et al., 1998). While this was certainly a boon to economic activity, it also eased the movement of people, a factor which is consistently associated with the spread of HIV.

Due to intermittent but ongoing conflict in neighboring states, by the end of 2004 there were still approximately 150,000 refugees from Liberia, Sierra Leone, and Cote d'Ivoire in Guinea. Due to the conflict in Cote d'Ivoire, over 100,000 Guineans living and working there returned to Guinea, also primarily to the Forest Region (Lowicki-Zucca, Spiegel, & Ciantia, 2005; Milner, 2006). This has continued to drive an increase in HIV

prevalence in Guinea, as Cote d'Ivoire has for many years had the highest HIV prevalence in West Africa.

By the early 2000s, HIV prevalence in towns in the Forest Region, the area where refugees from neighboring conflicts were located, was over 7%. The prevalence rate in urban areas had increased to 4.4% and had risen to 2.2% for much of the rural countryside (Lowicki-Zucca et al., 2005). For Guinea as a whole, the influx of refugees resulted in a doubling of the HIV prevalence rate from 1990 to 1994, and it doubled again from 1994 to 1997. By 2000 the rate had increased by a further 50%.

8.2 Democratic Republic of the Congo

Fleeing in the wake of the Rwandan genocide and the takeover of Rwanda by the RPF, the former Hutu-dominated government fled to Zaire, taking all the money from the Rwandan Central Bank and herding into exile approximately 2.1 million people. Hutu refugees also fled to Tanzania and Burundi. In the south of Rwanda over 500,000 people lived in IDP camps leftover from the French Operation Turquoise; another 500,000 people were displaced all over Rwanda. By the end of this phase of the conflict, only 45 percent of the prewar population of Rwanda was living in roughly "normal" conditions. Roughly 700,000 Tutsi moved in from neighboring countries to nearly replace the 800,000 that had been killed during the genocide.

Those fleeing to Zaire did not initially flee far. They settled directly on the border with Rwanda in enormous refugee camps, where assistance quickly began flowing from the UN and NGOs. The largest camps (Katale, Kahindo, Mugunga, Lac Vert, and Sake) were located around Goma, the capital of North Kivu province (2.8 million); over 850,000 Rwandans were located in these camps, including 30,000-40,000 ex-FAR. This was the population after over 50,000 refugees died from a cholera epidemic. Approximately 120,000 refugees settled outside the camps and mixed with the local population, but they were rounded up by the Zairian army and forced into the camps within a few months (Damme, 1995). Smaller camps were located in South Kivu (population 2.4 million), comprising some 650,000 refugees. Another 255,000 Burundi refugees settled in South Kivu. Both Kivus are high population density regions within the low density DRC. The flight of the refugees was not a disorganized affair but was highly regulated. Once in the camps, former leaders maintained tight control (Prunier, 2008).

Not only did the former government maintain the resources from Rwanda's financial institutions, ex-officials also continued to make money off the camps by serving as the intermediaries between the UN/NGOs and the refugees for the purposes of disbursing aid. The political control of entire camps in the eastern DRC had been taken over by militias, as occurred most famously in Goma (Jacobsen, 2002). In part due to guilt over failing to act during the Rwandan genocide, many countries and

organizations donated millions of dollars for refugee aid. From 1994-1996, this amount equaled over \$2 billion, more than double the amount of humanitarian aid given to the fledgling Rwandan government. In contrast, Mobutu had little incentive to take action on the refugee crisis because the Kivus had long been hostile to his rule, and the crisis made him important again to Western regimes. After the end of the Cold War, Mobutu was an “old dinosaur” who mattered little to world politics; the refugee crisis was a chance for Mobutu to once again gain prominence in international affairs.

The largely Hutu refugee flows lacked strong ethnic ties in eastern Zaire. In contrast, the Tutsi in Rwanda shared old but still politically significant ties with the Banyamulenge who migrated as early as the seventeenth century and the Banyarwanda populations that were settled in eastern Zaire by the Belgian Mission d’Immigration des Banyarwanda. In fact, Mobutu had used the Banyamulenge and Banyarwanda populations as a counterweight to the autochthon tribes native to the Kivus, exacerbating ethnic tensions and creating resentment for Kinyarwanda speakers who were perceived as having dual loyalties. In many cases they did; many Banyamulenge, for example, volunteered with the RPF during the Rwandan civil war (Prunier, 2008).

Tired of ex-Far and Interahamwe attacks organized from refugee camps inside the Zairean border, the RPF eventually attacked eastern Zaire in 1996. The attack was supported by Uganda, which sought to resolve its conflict with Sudan and Sudan’s proxy anti-Ugandan militia, which was based in northeastern Zaire. Within days,

hundreds of thousands of refugees began fleeing into the bush or further into Zaire.

While several hundred thousand Rwandan refugees were repatriated by the UN or self-repatriated, the exact numbers are unclear. However, it is likely that over 400,000 of the refugees in North Kivu fled further in Zaire, and virtually all the Rwandan refugees in South Kivu fled further south and west into Zaire. Nearly 100,000 refugees remained in the Kivus, taking refuge with the tiny Congolese Hutu minority populations around Masisi and Walikale. Refugees fleeing into Zaire were often pushed along by RPF forces and allied militias, which would in many cases catch up, separate out the young men, and execute them. In some instances, they waited for NGO aid workers to draw refugees out of the forest before attacking.

Governance and normal economic and social interactions ground to a halt in eastern Zaire with the invasion of the RPF and other nation-state militaries in 1996. Widespread mass killings, increases in violent crimes, and looting all contributed to the breakdown of society. Agricultural production plummeted as women were often afraid to cultivate their fields due to fears of being assaulted or raped by marauding armies or militants. Exposure to weather and malnutrition weakened the health of the population, and the health system collapsed almost completely. Particularly in the eastern DRC, it was common for armed groups of men to overrun a village and serially rape women and girls. Many of these sexual assaults were considered rape with extreme violence,

characterized by gang rape, genital mutilation, or the intentional transmission of STDs such as chlamydia and HIV (Mukwege & Nangini, 2009; Wakabi, 2008).

Even after the first and second Congolese wars ended, life in the Kivus was still characterized by periods of relative calm punctuated by acute insecurity. This pattern is common in many African conflicts and may have contributed to the HIV epidemic there (Culbert et al., 2007). Perhaps the periods of relative peace were enough to keep normal social relations and interactions going, but the periods of conflict were enough to prevent adequate prevention and treatment programs, as well as the build-up of health infrastructure. After all, even minor instability or short episodes of violence can clear out NGOs and health workers, as well as disrupt treatment and other health services.

As discussed above, STIs including HIV/AIDS spread fastest in situations of poverty, powerlessness, and social instability. In post-genocide Rwanda, where prevalence was 11%, 17% of women who had been raped were HIV-positive (Krause, Jones, & Purdin, 2000). Population density in some areas of the Kivus, even before the arrival of the refugee populations, was more than ten times the population density of Zaire as a whole. This set the state for the rapid transmission of HIV.

Other risk factors include the high levels of violence, reports of extensive rape, and the large number of displaced people who were initially confined to camps but later dispersed among the population. Despite low prevalence in the DRC as a whole, as well as poor transport infrastructure, the attacks by the RPF and other militant organizations

forced refugees to flee into Zaire and to integrate with the local populations, knowing they would receive little to no aid. Disassortative mixing was high (McInnes, 2011).

Though the DRC as a whole did not see a dramatic increase in HIV prevalence, the eastern regions of the country most affected by conflict and refugees did. Increases in HIV infection among the general population in eastern DRC (with rates estimated between 15 and 24 percent) are primarily attributable to the breakup of refugees camps and their attendant services for refugees, a region-wide breakdown of health services, and extensive sexual violence perpetrated by paramilitary groups operating with restraint in the region for years (P. B. Spiegel, 2004). However, this increase only occurred after the refugee camps were emptied by war and targeted violence. While confined to camps, the refugee populations did not contribute to the proliferation of HIV in the DRC.

8.3 Angola

The signing of the Memorandum of Understanding by the Angolan Army (Forças Armadas de Angola, FAA) and the UNITA military forces (Forças Militares da União Nacional para a Independência Total de Angola) in April 2002 marked the end of twenty-seven years of civil war in Angola. At the time the peace accord was signed, over 4.1 million Angolans were internally displaced, living in camps or in urban areas. A further 450,000 were refugees, living primarily in neighboring Zambia, with significant numbers in Namibia and to a lesser extent the DRC. By mid-June 2003, 2.34 million IDPs

had moved back to their areas of origin. Between 176,000 and 190,000 Angolan refugees spontaneously returned to Angola within the first 18 months, in addition to 43,323 who were officially assisted in repatriating by UNHCR. According to official Angolan government estimates, within 18 months of the ceasefire almost 3.8 million people had returned home (Lari, 2004; P. Spiegel & De Jong, 2003).

The war between MPLA and UNITA began even before Angola's independence from Portugal in 1975 and lasted intermittently until the peace accords of 1991. Hostilities flared up again in the fall of 1992, after the UNITA opposition refused to accept the results of the presidential elections and continued until another peace agreement was signed in 1994. A brief period of relative peace followed until trust broke down between MPLA and UNITA after a year-long deterioration of the military and political situation, resulting in the resumption of the conflict after the FAA launched an offensive in the country's central highlands to capture UNITA's headquarters in the towns of Bailundo and Andulo (Richardson, 2002). The war lasted until the death of UNITA's leader - Joseph Savimbi - and the organization's military defeat in 2002 (Agadjanian & Avogo, 2008; Prunier, 2009).

In Angola, remarkably low HIV-prevalence rates in the late 1980s and 1990s - relative to surrounding countries - were due largely to the impact of civil war on life in Angola. Despite significant mineral riches, Angola is one of the poorest countries in the world. Newly discovered oil wells and their accompanying signature bonuses were

used to finance the war effort rather than social or health spending. The civil war even prompted government intervention in wars in the DRC and Congo-Brazzaville in 1997 to overthrow governments supportive of UNITA (Prendergast, 1999; Richardson, 2002). After nearly three decades of war, which resulted in extremely limited population mobility within Angola and large refugee outflows to countries with higher rates of HIV/AIDS prevalence, the end of the civil war in 2002 was accompanied by a massive return and reintegration of Angolan refugees as well as the demobilization of military men, both populations at significantly greater risk for HIV infection (Bing et al., 2008).

Limited population mobility was particularly acute in the late 1980s and throughout the 1990s, due to fighting from 1992-1994 and the resumption of fighting after the failure of the Lusaka Accords in 1998, which lasted until 2002 (Lari, 2004). The last phase of the war, from 1998-2002, was characterized by scorched earth strategies, indiscriminate targeting of civilians by artillery and air attacks, widespread pillaging, and an international embargo on the areas held by UNITA (Richardson, 2002). People in these areas that did not flee to urban areas of neighboring countries were inaccessible to the rest of the country until demobilization between April and August 2002, limiting the spread of HIV within Angola (Grein et al., 2003).

Within Angola, the reduction in prevention and curative health services and gender-based violence appear to have been outweighed by the dramatic reduction in population mobility. Though sexual violence was reported, it was far less common than

in other conflicts (McInnes, 2011). The percentage of paved roads was virtually zero through the 1980s and 1990s, suggesting extremely poor transportation infrastructure (McInnes, 2011). Men were not able to seek work in large cities and trucking routes were disrupted (P. Spiegel & De Jong, 2003). The frequency of unpredictable attacks on transit between major urban areas, combined with the dire conditions of roads, bridges, and other transportation infrastructure, greatly restricted the movement of Angolans. Landmines were also a widespread threat and resulted in tens of thousands of amputees and created incentives to avoid many areas. The only safe method of travel during much of the Angola civil war was by air, which was also prohibitively expensive for the vast majority of the population (Richardson, 2002). The war itself was largely confined to low population, low density rural areas. Overall, the opportunities for disassortative mixing were highly circumscribed until the end of the war, with the exception of some migration to the capital (McInnes, 2011).

At the end of the conflict, several hundred thousand Angolan refugees were in Zambia alone (Richardson, 2002). Most Angolan refugees settled into Zambian villages near the border with Angola and resisted government and international efforts to move them into refugee settlements. For the Lunda, Luvale, Chokwe, Mbunda and Luchazi peoples of the upper Zambezi there has been a long history of movement from the north and west and into present day Zambia. All these groups trace their origins to the central Luunda Kingdom of Mwanta Yavwa in Congo (Kinshasa) and share a history of

migration through Angola into Zambia. In the eighteenth and nineteenth centuries, this movement was in response to the Atlantic slave trade and later the search for ivory and rubber. With the extension of colonial administration at the beginning of the twentieth century in Angola, many fled Angola into Zambia to avoid the harsh Portuguese regime and its use of forced labor. This social and historical practice of migration enabled refugees who fled into Zambia to make new homes among the Zambian villagers due to cultural similarities and in many cases ethnic and extended familial ties (Bakewell, 2000).

Though Angolan refugees who self-settled in rural Zambia were successful in integrating into Zambian society, they were usually economically worse off than those in camps (Westin, 2002). Those Angolans in the official refugee camps near Mehba, Mayukwayukwa and Nangweshi were extremely isolated (a total of over 88,000). Individuals in these camps had extremely limited contact with the local population, with limited opportunities to leave the refugee settlements. However, physical conditions were superior, including broad access to markets and decent health and education services. They were living in refugee “settlements” rather than camps, meaning that they were self-sufficient in food; in fact, they produced surpluses of sweet potatoes, vegetables, and other crops. In addition, there was also a safety net of food rations provided by the international community. They also had greater chances for gainful employment than the refugees living in Zambian villages.

In contrast, the majority of Angolan refugees in Zambia who integrated with the host population were unable to get jobs because many government projects required the possession of a Zambian Registration Card. In many cases Angolan refugees were denied access to food and health aid. Access to markets, healthcare, and education services were all highly curtailed. Despite the ability to integrate into society, most Angolan refugees expressed plans to return to Angola after the cessation of hostilities (Bakewell, 2000).

The situation for urban internally displaced persons was similar in many ways to those integrating into the neighboring countries. In the capital, Luanda, where HIV/AIDS rates were higher than any other part of the country, displaced persons initially found some support by living with host families. However, the number of individuals fleeing intrastate violence quickly overwhelmed this capacity for aid. Displaced persons were forced to adapt to the capital economy, often taking on poorly paying temporary jobs as street vendors or cleaning and washing for resident families. In contrast, internally displaced persons in camps (numbering 1.2 million) were relatively isolated and enjoyed substantial humanitarian assistance delivered primarily by UN operational agencies and INGOs. Food rations, water, primary health care and education were all made available in the camps (Lari, 2004).

Displaced persons in both urban areas as well as neighboring countries were residing in areas with relatively higher HIV prevalence than much of Angola. HIV-

prevalence in Angolan refugees in Zambia was estimated to be between 5 and 10 percent by the time of the signing of the peace accord, a rate similar to the Angolan capital. The population of Greater Luanda had swollen to four million by the end of the war in 2002 due to the flight of internally displaced persons, because it was one of the few places of safety in the country (Agadjanian & Avogo, 2008; P. Spiegel & De Jong, 2003). Unfortunately, HIV/AIDS prevalence was also substantially higher in Luanda than the majority of Angola.

The end of the Angolan civil war did not bring immediate relief because the country was practically in ruins. By 1990, years before the end of hostilities, per capita income was 45 percent of its 1974 level. Agricultural production was minimal throughout the war. Servicing the national debt accounted for roughly 30 percent of the value of exports; military expenditures stood at around 60 percent of the total national budget (Prunier, 2009). These meager resources could not compensate for the massive influx of refugees and the return of IDPs to their rural communities. There were over 760,000 refugees in neighboring Zaire, Namibia, and Zambia, 1,345,300 internally displaced persons, and another 2,161,000 person considered by the UN to be “affected by the conflict.” These figures are substantial given a population of 12,486,000.

From 1990 to 2002, the HIV prevalence rate in Angola changed in tandem with the presence of violence, particularly the lack thereof. During the period of relative peace from 1994 to 1998, the HIV rate grew. However, ongoing low levels of violence

and destruction of transportation infrastructure still held the epidemic in check. From 1998 to 2002, the epidemic was largely stable. Only in 2003, after refugees began returning from high prevalence Zambia (14.7% in 2002) and Namibia (15.4%) did HIV prevalence in Angola once again begin to climb. This coincided with a return of rural IDPs to their homes from their sanctuary in high prevalence urban areas such as Luanda.

The tenuous relationship with the state, shared ethnicity, settlement patterns due to historical migration, and the very low population density along the border between Zambia and Angola allowed Angolans to be fully integrated into Zambian villages (Bakewell, 2000). In exchange for material benefits and better opportunities including the chances for a job, education, and health care, refugees in official settlements in Zambia were restricted in movement and interaction with the Zambian population. However, this geographic and social isolation restricted the number who contracted HIV/AIDS. In contrast, those who settled in the Zambian border villages were able to integrate into society but were less secure, with poor access to employment, health care, and education. Unfortunately, this proved to be the large majority of the Angolans in Zambia, and this subsequently led to an increase in the Angolan HIV prevalence rate upon the return of these refugees to Angola.

8.4 Mozambique

Despite bordering on countries with high HIV/AIDS prevalence – Tanzania, South Africa, Zambia, Zimbabwe, Malawi, and Swaziland - the AIDS epidemic in Mozambique started later than in the surrounding countries. In large part, this was due to the fact that civil war isolated Mozambique from its neighboring countries and limited the movement of people within the country. Only after the General Peace Accord in October 1992, which resulted in increased internal and external population mobility, did HIV prevalence begin to rise (Agha, Karlyn, & Meekers, 2001).

At the peak of the Mozambique refugee crisis, due to the civil war, an estimated two million of Mozambique's 15 million people were refugees in neighboring countries. More than four million were internally displaced. Refugees fled into virtually every neighboring country, with large numbers fleeing to Malawi, Zambia, Zimbabwe, and Tanzania (Kalipeni & Oppong, 1998). In 1992, the year of the signing of the General Peace Accord, the HIV prevalence rate in Mozambique was estimated to be only 1.4 percent. However, HIV prevalence rates in the countries from which refugees returned - Tanzania, Zambia, Malawi, and Zimbabwe - were 6.6%, 13.8%, 14.3%, and 21%, respectively. Only three years later, HIV prevalence in Mozambique had more than doubled to 3.1%, and within ten years was 10.5 percent. The epidemic only began to slow in 2006 and has since begun to stabilize.

This process was driven primarily by the return of refugees who had integrated into the neighboring, high prevalence states during the war. Studies have found that district-level seroprevalence rates correspond to the proportion of the district population that was living outside Mozambique at the time the civil war ended in 1992. After the end of the conflict in 1992, increased demographic and economic exchanges with neighboring countries as well as demobilization were partially responsible for the post-war explosion of HIV/AIDS (Agadjanian & Avogo, 2008).

Various factors conspired to make Mozambican refugees more susceptible to disease. In the early 1990s, persistent drought brought famine, which forced a number of refugees to flee back across the border to Malawi. Also, much of the infrastructure of the country was damaged or destroyed in the war. Between 1982 and 1986 alone, war destroyed more than 40 percent of Mozambique's health centers. RENAMO guerillas and government forces destroyed and looted over half of all the primary healthcare facilities in the country, and landmines were even placed in the vicinity of hospitals to deny their use by enemy combatants. The war also resulted in the failure of pumps used to draw water, because they could not be maintained, as well as outright destruction and even poisoning of water sources (Kalipeni & Oppong, 1998; K. B. Wilson, 1994).

In the case of Mozambique, as with Angola, war actually mitigated the spread of HIV/AIDS by dampening the mobility of individuals within Mozambique for years. Only after conflict ceased, and refugees returned from neighboring high prevalence

states, where they often lived in the local population, did the HIV epidemic begin in earnest.

9. Conclusion

James Wolfenson, former President of the World Bank, neatly sums up the thinking regarding the relationship between HIV and security at the turn of the century. “Many of us used to think of AIDS as a health issue. We were wrong. AIDS can no longer be confined to the health or social portfolios. Across Africa, AIDS is turning back the clock on development...Nothing we have seen is a greater challenge to the peace and stability of African societies than the epidemic of AIDS...We face a major development crisis, and more than that, a security crisis. For without economic and social hope we will not have peace, and AIDS surely undermines both...We need to break that vicious circle of AIDS, poverty, conflict, AIDS...not only does AIDS threaten stability, but when peace breaks down it fuels AIDS. Of the countries in Africa with the highest prevalence of AIDS, half are engaged in conflict of one kind or another...AIDS spreads through the military. It spreads even when conflict ends and when populations move. It spreads rapidly among refugees, 75% of whom are women and children, making them especially vulnerable. There are too many refugees in Africa. Too many refugees and too many conflicts and AIDS is their handmaiden.”¹

¹ Speech given to the UNSC meeting on HIV/AIDS in Africa, 10 January 2000, as cited in (G. Mills et al., 2014)

In the preceding chapters I tested the assumed links between HIV/AIDS and conflict. I found that while HIV/AIDS may be associated with some forms of civil violence, there is little evidence to substantiate an association between the AIDS epidemic and civil war, let alone state failure. With regards to the impact that conflict and war can have on HIV transmission, I found that shared ethnicity between host and refugee populations, as well as conflict cessation, can give rise to higher HIV/AIDS prevalence.

In the fourteen years since HIV/AIDS was declared a security issue by the UN, it has become evident that it has not produced the instability and insecurity in sub-Saharan Africa that was expected. While, sub-Saharan Africa is disproportionately affected by the HIV/AIDS epidemic, poverty, and armed conflict (P. B. Spiegel et al., 2004), the the collapse of state structures many feared has simply failed to materialize. Several factors that drove the logic behind UN Resolution may have, in hindsight, been exaggerated. For example, recent data suggest that the relationship between soldiers and HIV is not as straightforward as was believed, and studies have failed to show dramatically elevated levels of HIV infection among many armed forces in Africa (Becker et al., 2008; McInnes, 2006). As suggested in the case studies of Chapter 5, the impact of the epidemic may have been mitigated by the seriousness with which African states, international organizations, and Western governments approached HIV/AIDS in the late 1990s and 2000s.

9.1 Implications

Tens of millions have died from HIV/AIDS and tens of millions more are infected. The number of individuals with HIV/AIDS grows every day. It is unclear if the danger from the epidemic has entirely dissipated. And despite substantial increases in funding for and the availability of ART, over 19 million individuals eligible for ART still do not receive it (UNAIDS, 2013). For every two people receiving ARVs, five new people become infected (United Nations, 2010). Thus, the importance of the HIV epidemic, which is clearly tied to political, social, and economic factors, remains momentous.

Rapid population growth and urbanization are creating conditions that lead to the rapid spread of infectious diseases. Human behavior is making people more susceptible to some diseases and in many cases weakening human disease resistance (as with the misuse of antibiotics). Regional and global environmental changes are creating ecosystem shifts conducive to the acceleration of mutations and greater exposure to previously geographically contained diseases. The bulk of population growth is occurring and will occur in the megacities in the Global South, which often feature squalid living conditions that provide greater opportunities for viruses, bacteria, and parasites to spread rapidly from person to person (Pirages, 1995). Squalid conditions

and overcrowding have contributed to the resurgent TB epidemic, particularly in Russia and the former Soviet States in central Asia (Pirages, 1995). Aircraft cabins and even subway systems provide excellent conditions for the spread of microorganisms. Even before commercial air travel, swine flu in 1918-19 circumnavigated the globe five times in 18 months, killing 22 million people, 500,000 of them in the United States (Garrett, 1996). The ever-increasing genetic diversity of HIV strains is likely to increase, particularly in areas such as the DRC where conflict and refugee movements drive the mixing of populations with different subtypes. This presents the very real risk of new variants or recombinants that will resist treatment and complicate the efforts to develop an HIV vaccine (Vidal et al., 2005).

Africa's AIDS crisis has had a somewhat muted effect outside the continent, because of its marginal status in global economics and politics (Eberstadt, 2002). This would not be the case for severe epidemics in Russia, India, or China. Nevertheless, significant financing gaps must be filled to achieve universal access to treatment, prevention, and mitigation interventions (Lule & Haacker, 2011). Widespread HIV/AIDS prevalence in second wave countries such as Russia, India, and China could affect international decisions about direct investment, technology transfer, and personnel allocation (Eberstadt, 2002). While this analysis focuses primarily on sub-Saharan Africa, it is worth noting the concerns surrounding the HIV epidemic are also relevant to the disease's impact in Russia, India and China. Severe epidemics in any of these states

would derail the economic prospects of billions of people and would threaten the global military balance (Eberstadt, 2002). However, concerns about the epidemic's spread to India, China, and Russia may be somewhat ameliorated by the fact that the epidemic in sub-Saharan Africa has been due in part to ecological risks (prevalent malnutrition and a heavy preexisting burden of infectious disease) and behavioral risk, which increase the odds of contagion (Eberstadt, 2002).

Infectious disease may present several threats to the United States, as well as other developed countries. AIDS and other diseases pose a direct threat to the health of citizens. But there is always the possibility of biological attacks using infectious agents, the threat to US forces operating in developing countries on peacekeeping and humanitarian missions, and the exacerbation of military conflicts by the presence of AIDS (National Intelligence Council (US), 2000). Angola, Nigeria, South Africa, and others are core regional allies of the United States and critical suppliers of oil and strategic minerals (Singer, 2002). There is mounting evidence that the AIDS pandemic is driving up the costs of mining for precious minerals (Garrett, 2005).

The case studies in Chapter 5 also show that the Ugandan miracle is often misunderstood. To assume that it was any one intervention that led to declines in prevalence in Uganda overlooks the importance of the unique policy responses in that country, and countries with HIV prevalence rates over twenty percent would be wrong

to assume that by simply copying a few obvious Ugandan interventions they will be able to replicate such a dramatic reduction in prevalence (J. O. Parkhurst, 2002).

This study is also relevant to those who ask if too much is being spent on HIV. Political scientists and economists are well aware that we must address often conflicting priorities with scarce resources. Critics of HIV policy point out that while the impact of HIV is significant, it receives a disproportionate share of health aid. While it is responsible for less than one-fifth of the burden of disease in sub-Saharan Africa, it accounts for over forty-percent of such aid. Moreover, the World Bank has noted that projects are often too complex for the states and NGOs involved, which possess insufficient capacity and technical expertise (Bendavid & Bhattacharya, 2007).

The second set of policy implications concerns the role that conflict plays in determining HIV prevalence. The prevention of HIV infection in emergency situations, such as in the wake of conflicts and in refugee situations, not only has implications for populations directly affected by the crisis but also for the regional transmission and control of the HIV/AIDS epidemic in the long term (Khaw et al., 2000). Conflict-related deaths and injury are major contributors to the global burden of disease, and forecasting conflicts may provide helpful insight into the risks –and prevention of the deleterious consequences of those risks – posed by conflict. These include refugee movements and public health consequences (Murray, King, Lopez, Tomijima, & Krug, 2002). Efforts to

control and reverse the epidemic will ultimately require poverty alleviation and development projects.

9.2 Future Research

Future research should seek to elucidate the mechanisms through which the cessation of conflict matters. Does the repatriation of refugees play a prominent role? How long does the impact of conflict cessation persist? These are even more nuanced questions about the conditions under which conflict and refugees matter in the HIV/AIDS epidemic, and present fruitful avenues for subsequent work.

More detailed specification of the role of ethnicity of refugees in determining population mixing may also be possible. For example, geo-coded data could be used to confirm the relationship between regional or local level HIV rates, sites of conflict, and ethnicity to confirm the strength of the relationship at the micro level. Shared ethnicity is generally a good proxy for integration potential because borders in Africa generally cut across ethnic settlement patterns, but it is not always accurate (for example, due to the migration of some ethnic groups to cities). While this work is more nuanced in its approach than past analyses, future research should delve even more deeply into the mechanisms driving population mixing.

Further studies should also test under what conditions the various intervening variables, which mediate the effect of conflict on HIV/AIDS, function to increase the

spread of the disease. This study acknowledged the impact of sexual violence, malnutrition, the destruction of health care infrastructure, and other important variables, but modeled them only crudely with a measure of civil war. Given that the speed of HIV transmission will ultimately be dependent on the baseline level and distribution of the infectious agent, the rate of influx of infected and uninfected returnees, and the extent to which overlapping sexual networks form (Hankins et al., 2002), further analysis can be done to better understand that way in which HIV/AIDS may be spread.

Further work should also be done to understand how the states of sub-Saharan Africa have learned to cope with the impact of the HIV/AIDS epidemic. This will be particularly important in the event that the pandemic reaches higher levels in states such as Pakistan, India, Russia, and others that have fragile state institutions, large populations, and are integral to world politics.

Finally, this work focused exclusively on HIV/AIDS. Much of the logic governing the relationship between disease, conflict, and state capacity may apply to other infectious disease such as tuberculosis, malaria, and others. However, it may also be the case that the causal relationship is not identical for all diseases. Successive studies should explore the extent to which other microbes may impact social and political processes, as well as the disparate impact conflict may have on infectious diseases.

Appendix

A.1 – Chapter 4 Tables

Table 9: Civil War Onset and HIV (HIV lags)

	Model 6 (3-year lag)	Model 7 (5-year lag)
HIV	-0.059 (0.039)	-0.049 (0.048)
Development	-0.334 (0.185)	-0.438* (0.173)
Economic Growth	0.006 (0.095)	0.008 (0.12)
Population	0.124 (0.012)	0.204* (0.090)
Polity	0.009 (0.211)	-0.015 (0.023)
Peace Years (t)	-1.720* (0.224)	-1.671* (0.270)
Peace Years (t ²)	0.264* (0.144)	0.256* (0.056)
Peace Years (t ³)	-0.012* (0.003)	-0.012* (0.003)
Noncontiguous territory	0.565 (0.379)	0.577 (0.380)
ELF	1.030 (0.726)	0.923 (0.782)
Mountains	0.264 (0.051)	0.203 (0.141)
Intercept	-0.393 (1.544)	-0.731 (1.563)
	N=759	N=684

*indicates $p < 0.05$, robust SE in parentheses, clustered on countries

Table 10: HIV and Civil Violence (3-year HIV lag)

	Strikes	Riots	Demonstrations	Guerilla War	Revolutions
HIV	0.138** (0.053)	-0.068* (0.039)	-0.038 (0.025)	-0.192** (0.053)	-0.082** (0.039)
Development	1.852 (1.303)	1.390* (0.839)	1.036* (0.579)	0.348 (0.267)	-0.495** (0.236)
Growth	-0.053 (0.057)	-0.029** (0.013)	-0.037** (0.018)	-0.049** (0.020)	-0.017** (0.008)
Population	-10.021** (3.822)	0.530 (0.927)	0.807 (0.742)	0.987** (0.248)	-0.061 (0.141)
Polity	0.160** (0.082)	0.016 (0.027)	-0.021 (0.034)	0.020 (0.048)	-0.048* (0.026)
	N=722				

* indicates $p < 0.10$, ** $p < 0.05$, robust SE in parentheses, clustered on countries

Table 11: HIV and Civil Violence (5-year HIV lag)

	Strikes	Riots	Demonstrations	Guerilla War	Revolutions
HIV	0.072 0.071	0.066* (0.040)	0.027 (0.039)	-0.170** (0.057)	-0.073* (0.041)
Development	5.522** (2.336)	0.0886 (0.877)	1.234 (0.881)	0.0321 (0.278)	-0.488** (0.245)
Growth	-0.125** (0.058)	-0.031** (0.013)	-0.051** (0.018)	-0.029 (0.033)	-0.014 (0.010)
Population	-9.480** (4.490)	1.781 (1.248)	1.491 (1.123)	1.000** (0.277)	0.110 (0.156)
Polity	0.192 (0.139)	-0.005 (0.040)	-0.064** (0.029)	0.004 (0.047)	-0.059* (0.030)
	N = 684				

* indicates $p < 0.10$, ** $p < 0.05$, robust SE in parentheses, clustered on countries

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Biography

Nathaniel Harris was born in Sylva, North Carolina, in July 1984. He attended North Carolina State University in Raleigh, North Carolina, receiving Bachelor of Arts degrees in Chemistry and Philosophy in 2006 and a Bachelor of Science degree in Political Science in 2008. He received his Master of Arts and PhD in Political Science from Duke University in 2012 and 2014, respectively. He was the recipient of the 2012 Alona Evans Award for best paper in International Relations from the Department of Political Science at Duke University. He was a Bradley Foundation Fellow in 2012, 2013 and 2014. He also received the Dean's Graduate Award from Duke University. He is the co-author of a chapter on the Codex Alimentarius Commission in the *Handbook of Transnational Governance*. Broadly, he is interested in the social determinants of health.